

## Application:

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

## Pictures



## Thermal & Mechanical Spec.:

- Thermal performance for 80W CPU
- HSK Assembly Weight: 500 g (ref.)
- Clipping Force: 16 Kgf (ref.)

## Component Specification:

### 1. Heat Sink

Type: Extrude HSK

Material: Aluminum A6063 or Equivalent.

Dimension: 90\*90\*64 mm



### 2. Thermal interface material

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-----(-)

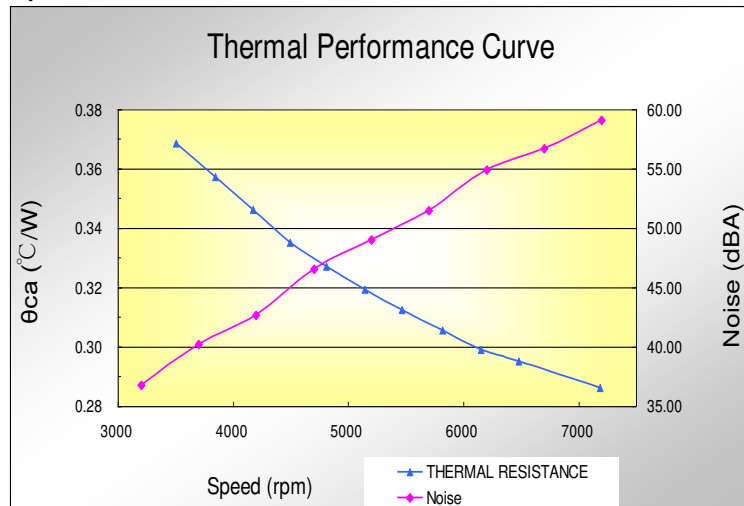
pin 2: yellow wire-----(+)

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



## APPROVAL SHEET

Customer Name .:

Model Name.: \_\_\_\_\_  
COOLER

Delta Part No.: \_\_\_\_\_  
FHS-A6025B00

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 |
|-----------------------------------|--|-----------------------|-----------------------|-----------------------|------------|
| <b>00</b>                         | <b>ISSUE SPEC</b>  | Skyler-Huang 01/05'10 | Charles Chen 01/05'10 | Alex-Hsia 01/05'10    |            |
| <b>01</b>                         | 1. CHANGE THE FAN P/N FROM 3620927211 TO 3620936511<br>2. CHANGE THE FAN LABEL P/N FROM 3266498200 TO 3266800400<br>3. CORRECT THE FAN LABEL MATERIAL&CARTON SIZE<br>4. CHANGE SCREW P/N FROM 3105464700 TO 3534205600 | Skyler-Huang 07/24'13 | Charles Chen 07/24'13 | Charles Chen 07/24'13 |            |
| <b>02</b>                         | 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 :<br><br>FHS-A6025B00 |  |                       | TOTAL 24 PAGE         |                       | 02         |



**Delta Electronics Corp.**

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|             |                            |             |             |
|             |                            |             |             |
|             |                            |             |             |
|             |                            |             |             |
|             |                            |             |             |
|             |                            |             |             |





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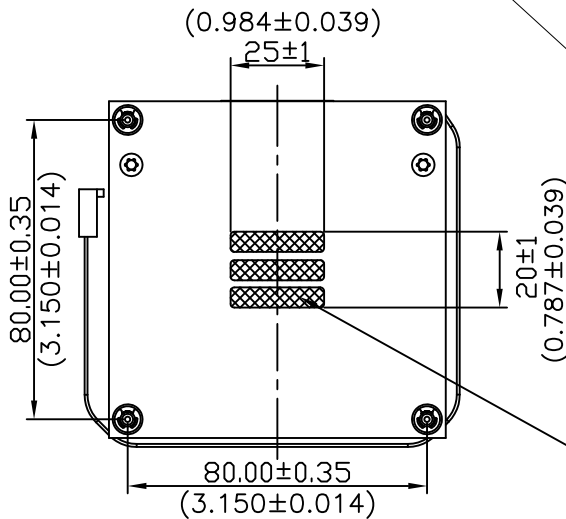
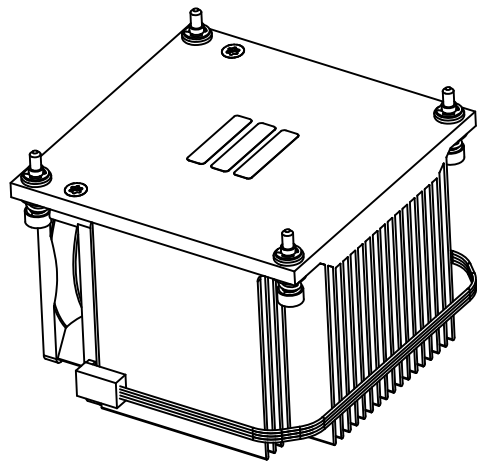
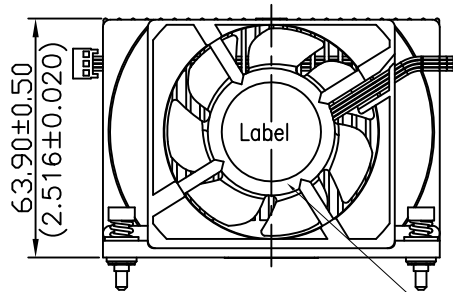
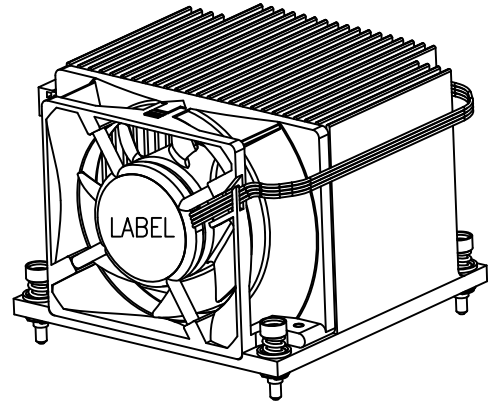
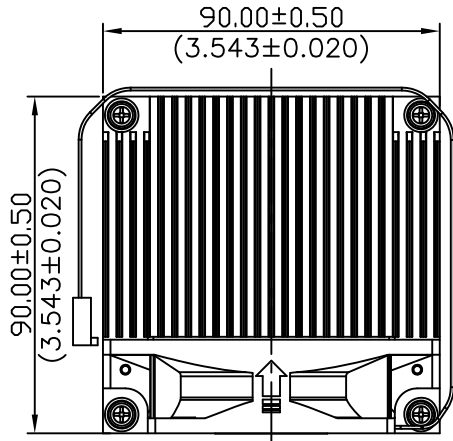
## **2. PRINT**

**Assembly Drawing**

**Parts Drawing**

UNIT:  $\frac{\text{mm}}{\text{INCH}}$

DRAWING:



FAN LABEL P/N: ~~3267401300~~  
 $\triangle 1$  3266800400

$\triangle 2$   
 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.

DELTA MODEL: FHS-A6025B00  
 Drawn: Charles Chen

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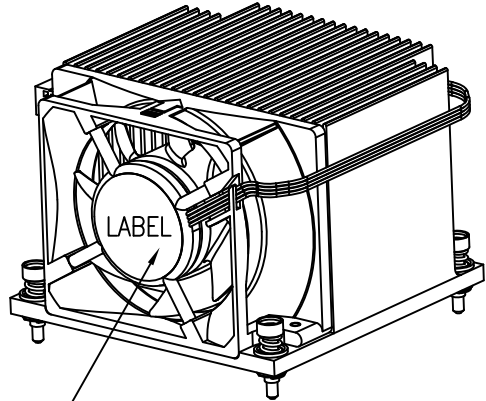
CUSTOMER NAME: -----  
 CUSTOMER P/N: -----

| DIMENSIONAL TOLERANCES |       | HOLES: ±0.05 |         | ANGLES: ±0.5° |          |       |
|------------------------|-------|--------------|---------|---------------|----------|-------|
| ( )                    | ( )   | ( )          | ( )     | ( )           | ( )      |       |
| <30                    | ±0.25 | DECIMALS     | UP-100  | ±0.2          | 250-300  | ±0.4  |
| >30-100                | ±0.35 | X            | 100-150 | ±0.25         | 300-350  | ±0.45 |
| >100-300               | ±0.5  | X.X          | 150-200 | ±0.3          | 350-400  | ±0.5  |
| ABOVE 300              | ±0.5  | X.XX         | 200-250 | ±0.35         | 600-900  | ±1.5  |
|                        |       |              |         |               | 900-OVER | ±3.1  |

Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)

SCALE: --- UNIT: --- USED ON: COOLER

Part No. FHS-A6025B00-PD  
 SHEET 1 OF 2  
 ISSUE DATE: \_\_\_\_\_  
 REV. 02



DATECODE POSITION

NOTE:

1. DATECODE ON FAN LABEL.
2. PLEASE REFER TO CP10S-00345 WHILE PRINTING DATECODE.



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DELTA ELECTRONICS, INC.

DELTA MODEL:  
FHS-A6025B00

Drawn:  
Charles Chen

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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  |
| >30~100                | ±0.35 | X                          | 100~150 | ±0.25 | 300~350 ±0.45 |
| >100~300               | ±0.5  | X.X                        | 150~200 | ±0.3  | 350~400 ±0.5  |
| ABOVE 300              | ±0.6  | X.XX                       | 200~250 | ±0.35 | 900~OVER ±3.1 |



Description: PRODUCTION SPEC.  
(PHYSICAL DIMENSION)

A4  
SIZE

Part No. FHS-A6025B00-PD

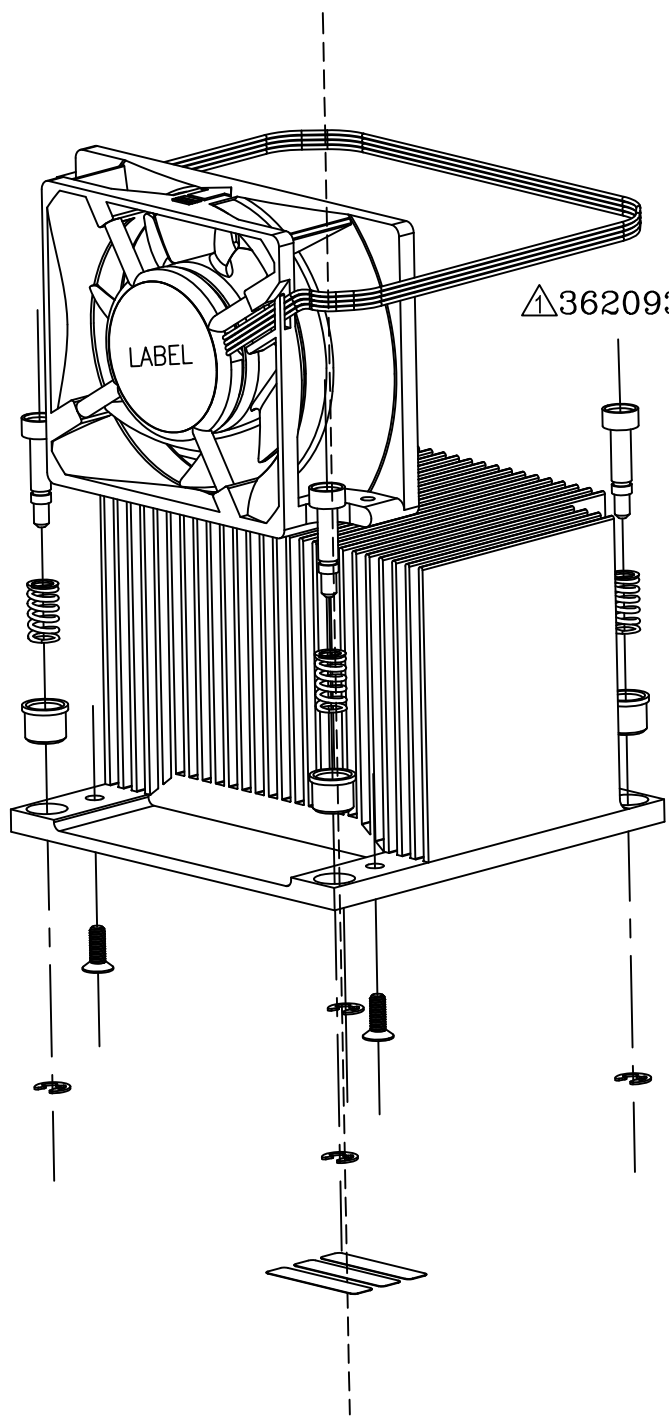
REV.

SHEET 2 OF 2 ISSUE DATE:



02

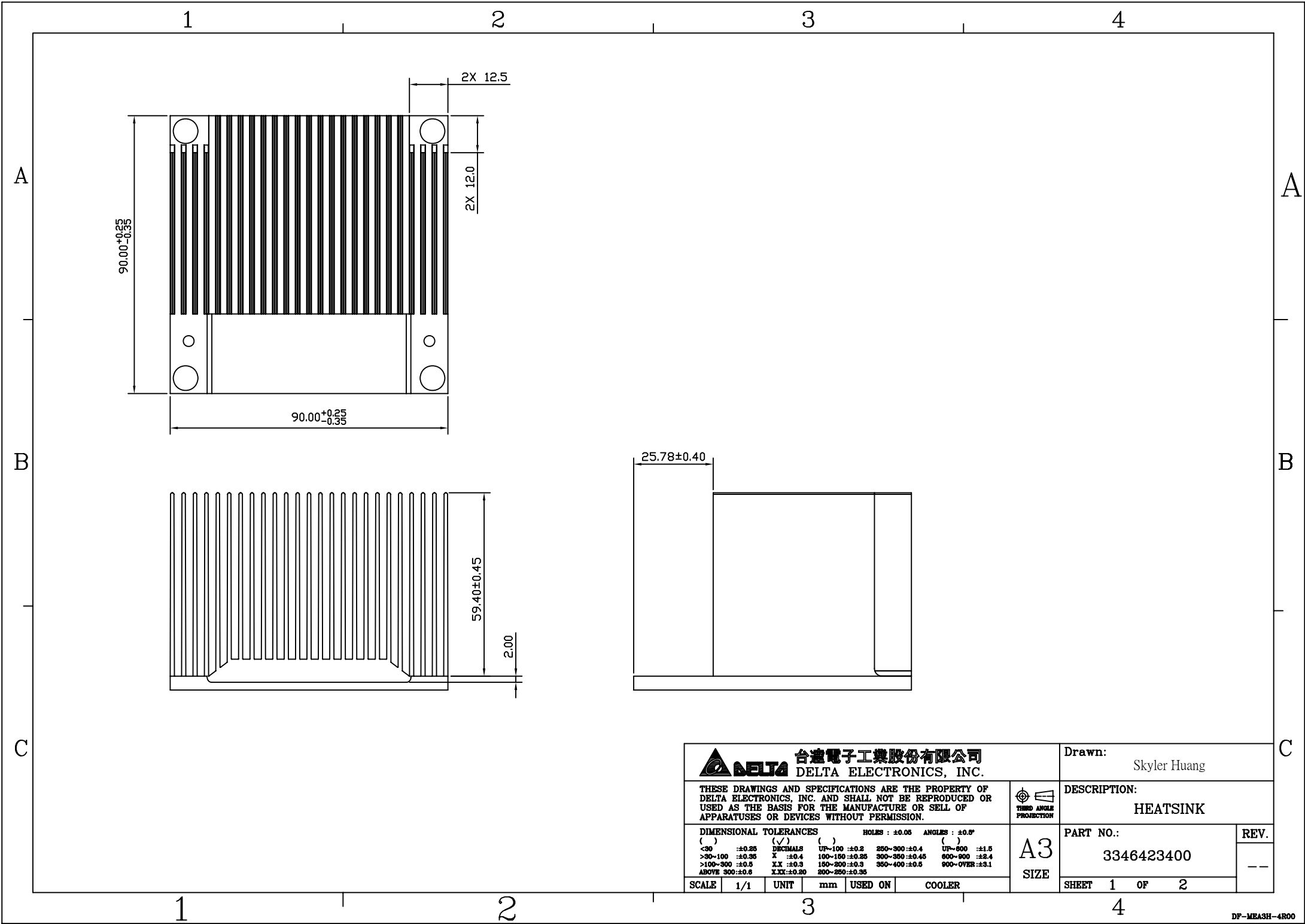
SCALE --- UNIT --- USED ON COOLER






- △ 3620936511 ~~3620927211~~
- △ FAN LABEL  
3266800400
- SCREW (4X)  
~~3515464700~~
- △ 3534206500
- SPRING(4X)  
3461809700
- CAP(4X)  
3462384700
- HSK  
3346423400
- FAN SCREW(2X)  
3109183100
- E CLIP(4X)  
3110262800
- △ TC-5630  
4021107300

|   |  |                             |
|---|--|-----------------------------|
|  <b>台達電子工業股份有限公司</b><br>DELTA ELECTRONICS, INC.  | DELTA MODEL:<br>FHS-A6025B00   | Drawn:<br>Charles Chen      |
|   | CUSTOMER NAME: -----<br>CUSTOMER P/N: -----  |                             |
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|   | Part No. <b>FHS-A6025B00-AS</b>  | REV.<br>02                  |
| DIMENSIONAL TOLERANCES<br><small>           ( )      ( )      ( )      ( )<br/>           &lt;30    ±0.25    DECIMALS    UP-100    ±0.2    250-300    ±0.4    UP-600    ±1.5<br/>           &gt;30-100    ±0.35    X    ±0.3    100-150    ±0.25    300-350    ±0.45    600-900    ±2.4<br/>           &gt;100-300    ±0.5    X.X    ±0.2    150-200    ±0.3    350-400    ±0.5    900-OVER    ±3.1<br/>           ABOVE 300    ±0.6    X.XX    ±0.1    200-250    ±0.35         </small> | Holes: ±0.05    ANGLES: ±0.5°<br> THIRD ANGLE PROJECTION<br><b>A4</b><br>SIZE | SHEET 1 OF 1    ISSUE DATE: |
| SCALE ---    UNIT ---    USED ON    COOLER  |  |                             |



|   |  |  |  |                                 |  |
|---|--|--|--|---------------------------------|--|
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| DIMENSIONAL TOLERANCES<br>( ) (✓) ( ) ( )<br><30 :±0.25    DECIMALS    UP-100 :±0.2    250-300 :±0.4    UP-600 :±1.5<br>>30-100 :±0.35    X :±0.4    100-150 :±0.25    300-350 :±0.45    600-900 :±2.4<br>>100-300 :±0.5    XX :±0.3    150-200 :±0.3    350-400 :±0.5    900-OVER :±3.1<br>ABOVE 300 :±0.6    XXX :±0.20    200-250 :±0.35 |  |  |  | PART NO.:<br><b>3346423400</b>  |  |
| SCALE 1/1    UNIT mm    USED ON COOLER  |  |  |  | SHEET 1 OF 2                    |  |
| SIZE<br><b>A3</b>   |  |  |  | REV.<br>--                      |  |

1

2

3

4

A

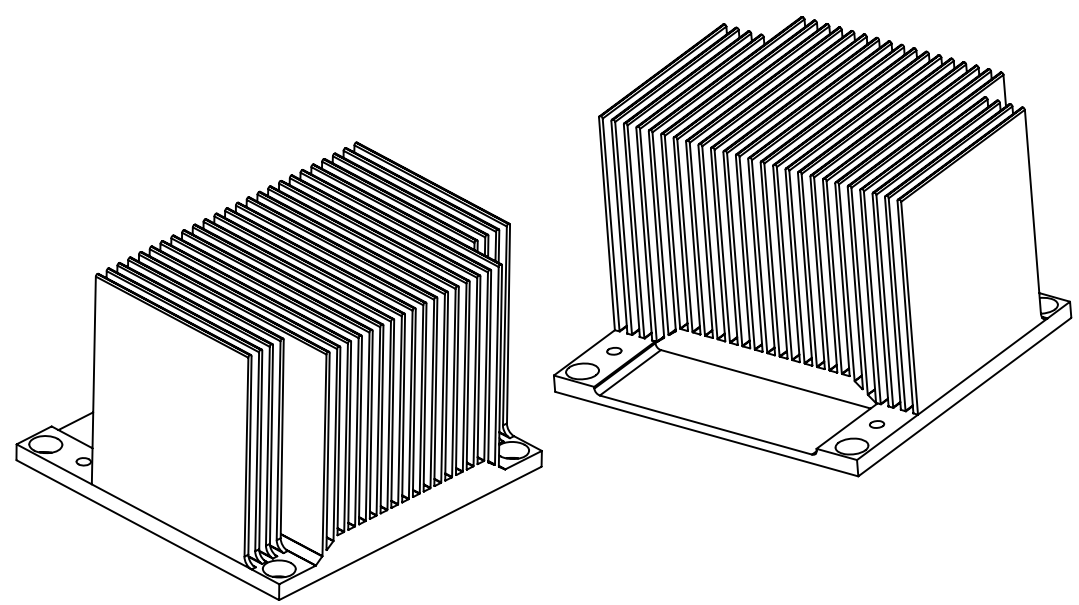
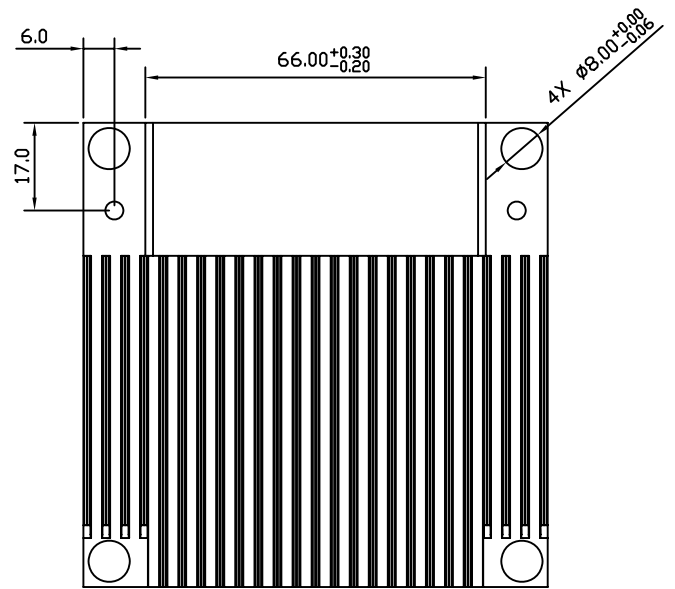
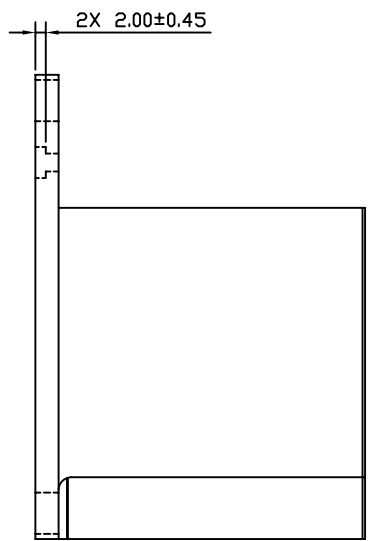
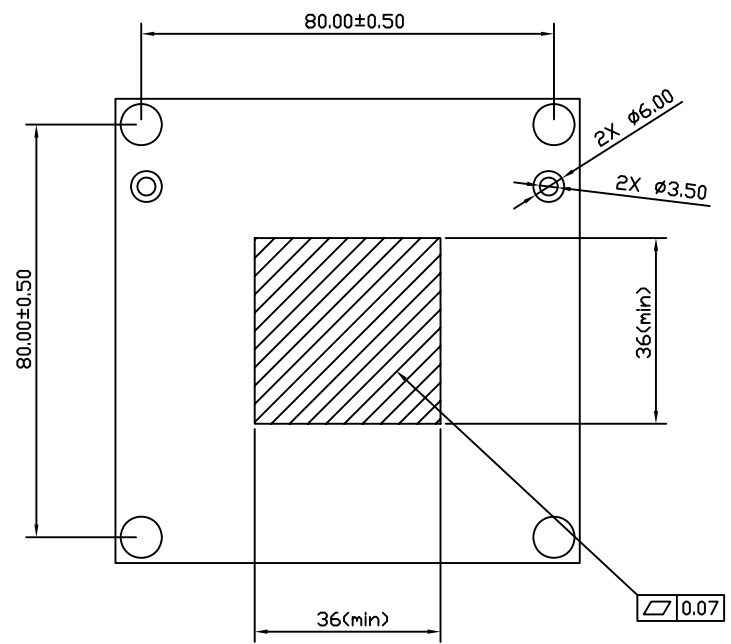
A

B

B



C

C



NOTES:

- \*1.MATERIAL: A6063-T5
- \*2.REMOVE ALL BURRS AND SHARP EDGES.  
SURFACE TO BE FREE FROM CONTAMINANTS.
- \*3.UNDEFINED DIMENSION PLEASE REFER TO 2D OR 3D SOURCE FILE.
- \*4.UNDEFINED RADII IS SMALLER THAN 0.5R UNLESS OTHERWISE SPECIFIED.

|  |     |   |    |
|--|-----|---|----|
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| DIMENSIONAL TOLERANCES<br>( ) (✓) ( ) ( )<br><30 ±0.25    DECIMALS    UP~100 ±0.2    250~300 ±0.4    UP~600 ±1.5<br>>30~100 ±0.35    X ±0.4    100~150 ±0.25    300~350 ±0.45    600~900 ±2.4<br>>100~300 ±0.5    XX ±0.3    150~200 ±0.3    350~400 ±0.5    900~OVER ±3.1<br>ABOVE 300 ±0.5    XXX ±0.20    200~250 ±0.35 |     | PART NO.:<br><b>3346423400</b>  |    |
| SCALE  | 1/1 | UNIT  | mm |
| USED ON  |     | COOLER  |    |
| SHEET  |     | 2 OF 2  |    |
| SIZE   |     | A3  |    |
| REV.   |     | --  |    |

1

2

3

4



**Delta Electronics Corp.**

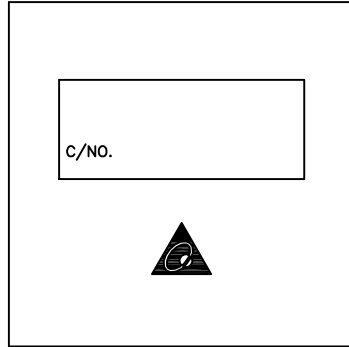
### **3. PACKING PLAN**

#### **Packing Specification**

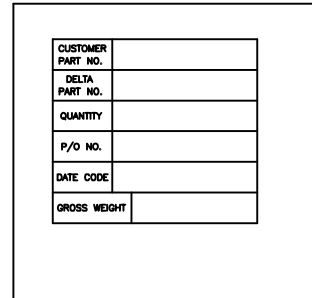
|                   |          |                            |                  |                |
|-------------------|----------|----------------------------|------------------|----------------|
| CARTON ILLUSTRATE | SIZE     | 420(L)*318(w)*195(H)(mm) △ | PACKING QUANTITY | 2LAYERS/CARTON |
|                   | MATERIAL | 3 LAYERS"AB" FLUTE         | CARTON WEIGHT    | 0.62 kg (REF.) |

CARTON OUTSIDE ILLUSTRATE

FRONT

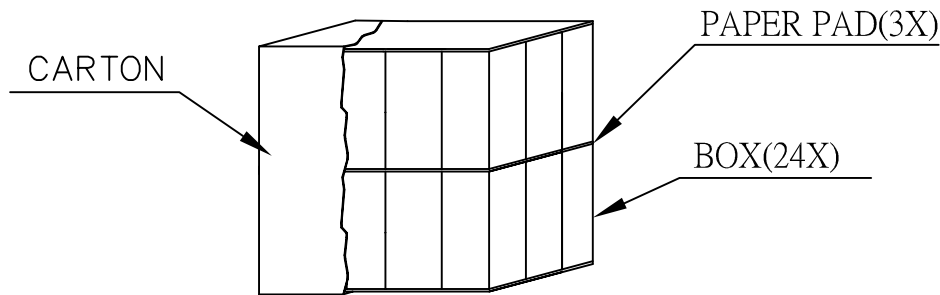


BACK



(ONE LABEL PER CARTON)

|                             |                 |                         |                  |               |
|-----------------------------|-----------------|-------------------------|------------------|---------------|
| PET TRAY PACKING ILLUSTRATE | SIZE            | 98(L)*98(w)*21.6(H)(mm) | PACKING QUANTITY | 1PCS/PET TRAY |
|                             | MATERIAL        | PET TRAY                |                  |               |
|                             | MATERIAL WEIGHT | 6g (REF.)               |                  |               |



台達電子工業股份有限公司  
DELTA ELECTRONICS, INC.

DELTA MODEL:  
FHS-A6025B00

Drawn:  
Skyler Huang

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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~800 ±1.5   |
| >30~100                | ±0.35 | X             | ±0.3        | 100~150 ±0.25  | 300~350 ±0.45 |
| >100~300               | ±0.5  | XX            | ±0.2        | 150~200 ±0.3   | 350~400 ±0.5  |
| ABOVE 300              | ±0.6  | XXX           | ±0.1        | 200~250 ±0.35  | 900~OVER ±3.1 |

Description: PRODUCTION SPEC.  
(PACKING ASSMEBLY)

A4 Part No. FHS-A6025B00-PA

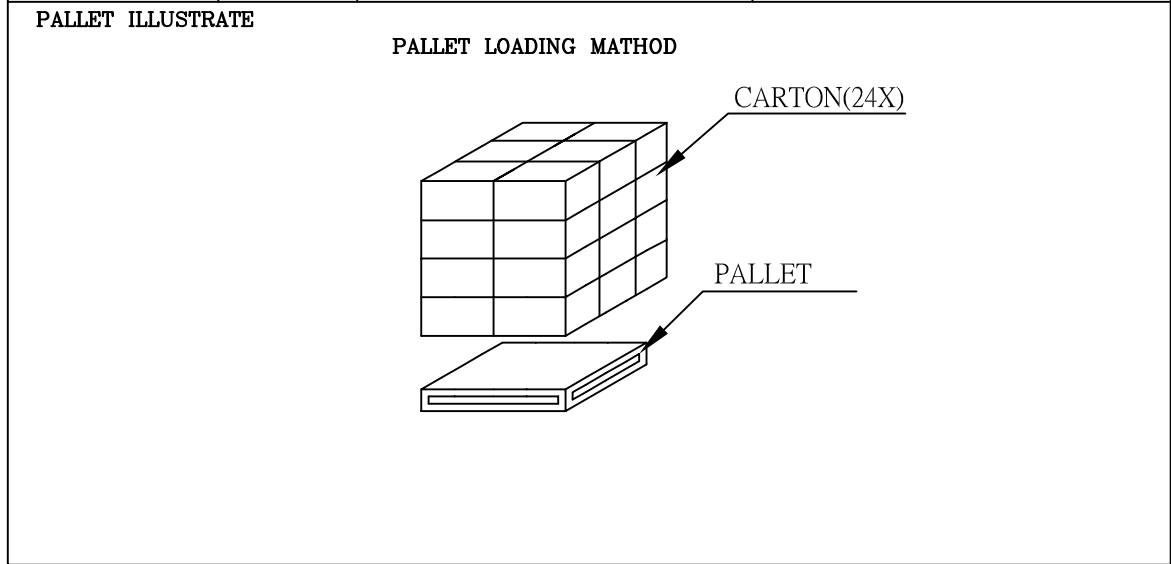
REV.  
---

SCALE --- UNIT mm USED ON COOLER

SIZE SHEET 1 OF 2 ISSUE DATE:

|   |                         |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|---|-------------------------|--------------------------------------|--------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|--------|--------|--------|--------|
| PART NO.  | FHS-A6025B00            |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| BASIC DATA  | QUANTITY/CARTON         | 24PCS (2 LAYERS/CARTON, 12PCS/LAYER) |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|   | PRODUCTION NET WEIGHT   | 12kg (REF.)                          |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|   | PRODUCTION GROSS WEIGHT | 14kg (REF.)                          |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| 20(ft)CONTAINER ILLUSTRATE  | SIZE                    | 5.889(L)*2.352(w)*2.386(H)m          |        | PACKING QUANTITY   |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|   | CONTAINER               | STEEL                                |        | 20PALLET/CONTAINER |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| CONTAINER FORM  |                         |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| CONTAINER LOADING MATHOD  |                         |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| <table border="1"> <tr> <td>PALLET</td> <td>PALLET</td> <td>PALLET</td> <td>PALLET</td> <td>PALLET</td> </tr> <tr> <td>PALLET</td> <td>PALLET</td> <td>PALLET</td> <td>PALLET</td> <td>PALLET</td> </tr> </table> |                         |                                      |        | PALLET             | PALLET | PALLET | PALLET | PALLET | PALLET | PALLET | PALLET | PALLET | PALLET | <table border="1"> <tr> <td>PALLET</td> <td>PALLET</td> </tr> <tr> <td>PALLET</td> <td>PALLET</td> </tr> </table> | PALLET | PALLET | PALLET | PALLET |
| PALLET  | PALLET                  | PALLET                               | PALLET | PALLET             |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| PALLET  | PALLET                  | PALLET                               | PALLET | PALLET             |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| PALLET  | PALLET                  |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| PALLET  | PALLET                  |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| TOP VIEW  |                         |                                      |        | FRONT VIEW         |        |        |        |        |        |        |        |        |        |   |        |        |        |        |

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



|  |  |                |                 |        |              |
|--|--|----------------|-----------------|--------|--------------|
| <b>台達電子工業股份有限公司</b><br><b>DELTA ELECTRONICS, INC.</b>  | DELTA MODEL:   | FHS-A6025B00   |                 | 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. | CUSTOMER NAME: | -----           |        |              |
|  | CUSTOMER P/N:  | -----          |                 |        |              |
| <b>DIMENSIONAL TOLERANCES</b><br>( ) ( ) ( ) HOLES : ±0.05 ANGLES : ±0.5°<br><30 :±0.25 DECIMALS UP~100 :±0.2 250~300 :±0.4 UP~800 :±1.5<br>>30~100 :±0.35 X :±0.3 100~150 :±0.25 300~350 :±0.45 800~900 :±2.4<br>>100~300 :±0.5 XX :±0.2 150~200 :±0.3 350~400 :±0.5 900~OVER :±3.1<br>ABOVE 300 :±0.6 XXX :±0.1 200~250 :±0.35 | Description: PRODUCTION SPEC.<br>(PACKING ASSMEBLY)  | Part No.       | FHS-A6025B00-PA | REV.   | ---          |
| SCALE --- UNIT mm USED ON COOLER   | A4 SIZE  | SHEET 2 OF 2   | ISSUE DATE:     |        |              |



**Delta Electronics Corp.**

## **4. FAN**

### **Fan Specification**





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><b>(CURRENT ON SAFETY LABEL 1.20A)</b>                       |
| 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 <sup>3</sup> /MIN.<br>31.01 (MIN. 27.91 ) CFM                |
| MAX. AIR PRESSURE<br>(AT ZERO AIRFLOW)     | 13.79 (MIN. 11.17 ) mmH <sub>2</sub> O<br>0.543 (MIN. 0.440 ) inchH <sub>2</sub> O |
| ACOUSTICAL NOISE<br>(AVG. ON SINK)         | 61.0 (MAX. 65.0) dB-A  |
| INSULATION TYPE                            | UL: CLASS A  |

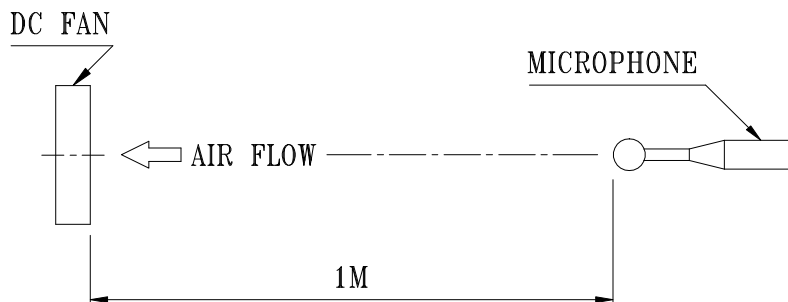
(continued)

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|                                       |  |
|---------------------------------------|--|
| 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 CONTINUOUS 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.

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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.

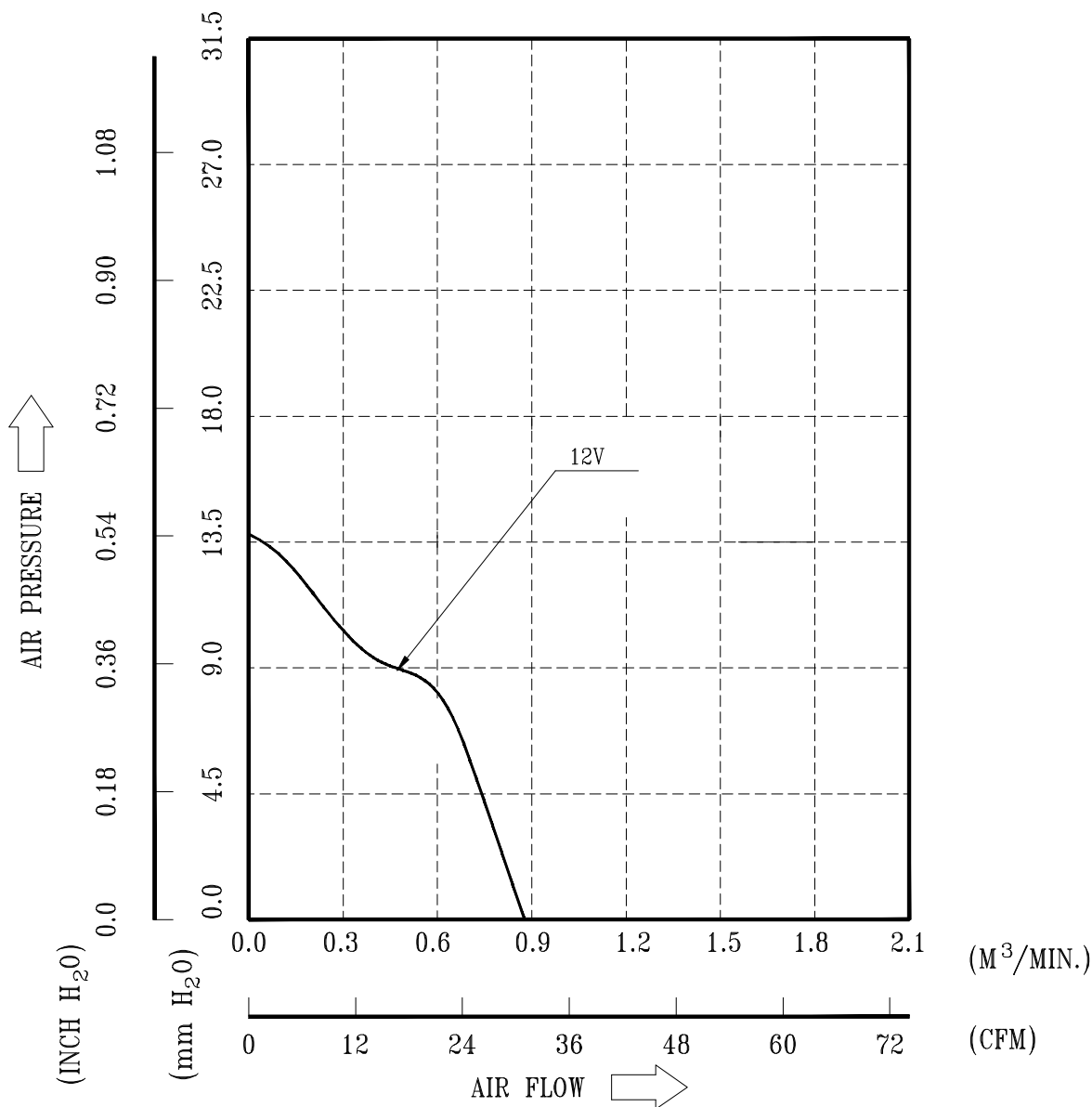
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:



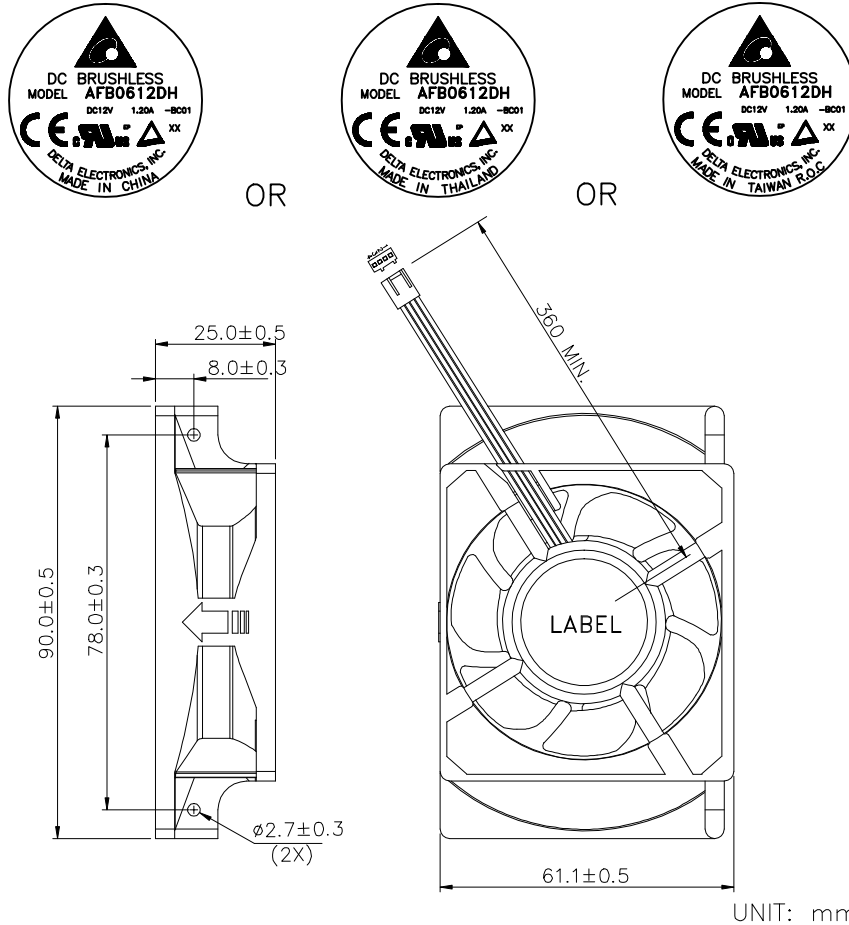
\* TEST CONDITION: INPUT VOLTAGE ----- OPERATION VOLTAGE  
TEMPERATURE ----- ROOM TEMPERATURE  
HUMIDITY ----- 65%RH

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9. DIMENSION DRAWING:

LABEL:



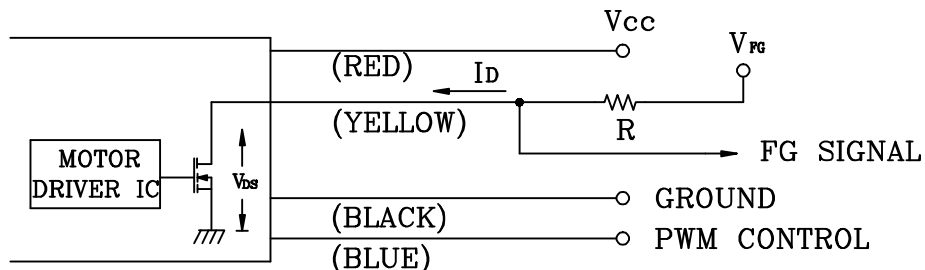
- NOTES :
- LEAD WIRE: UL 10368 -F- AWG #24  
PIN 1: BLACK WIRE: NEGATIVE (-)  
PIN 2: YELLOW WIRE: POSITIVE (+)  
PIN 3: GREEN WIRE: TACHOMETER OUTPUT (FOO)  
PIN 4: BLUE WIRE: SPEED CONTROL (PWM)
  - HOUSING : MOLEX 47054-1000 OR EQUIVALENT
  - TERMINAL : MOLEX 2759T 08-50-0113 OR EQUIVALENT
  - THIS PRODUCT IS RoHS COMPLIANT
  - 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),
    - BROMINE(Br) < 900 PPM,
    - CHLORINE(Cl) < 900 PPM
    - (Br) + (Cl) < 1500 PPM.

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### 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:

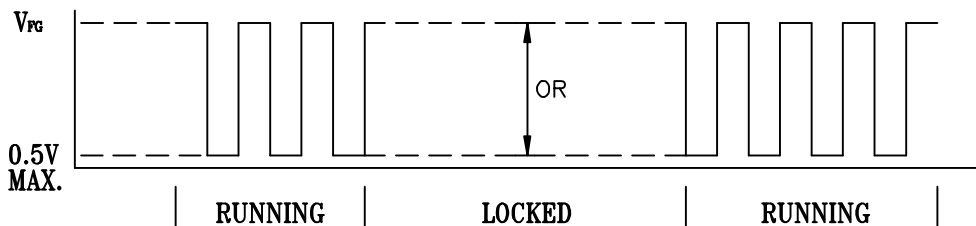
$V_{ds}$  (LINEAR) = 0.5V MAX.

$V_{FG}$  = 5.0V TYP. ( $V_{cc}$  MAX.)

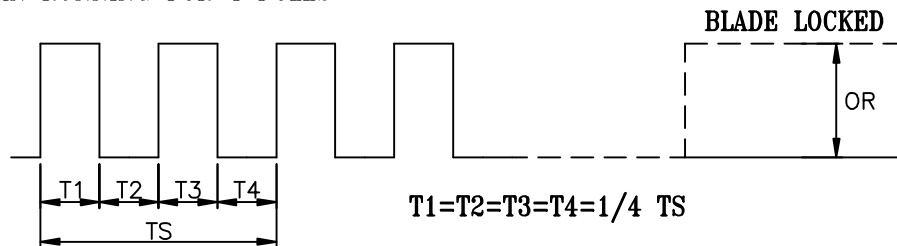
$I_d$  = 5mA MAX.

$R \geq V_{FG} / I_d$

#### 10-3. FREQUENCY GENERATOR WAVEFORM:



#### FAN RUNNING FOR 4 POLES



$N = \text{R.P.M}$

$TS = 60 / N (\text{SEC})$

\*VOLTAGE LEVEL AFTER BLADE LOCKED

\*4 POLES

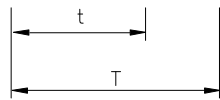
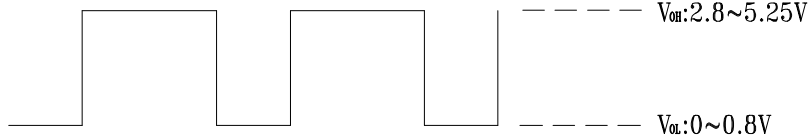
A00

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11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~5.25 VDC



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

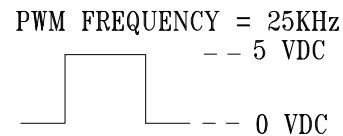
- THE FREQUENCY FOR CONTROL SIGNAL OF THE FAN SHALL BE ABLE TO ACCEPT A 21KHZ~28KHZ.
- THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0~10% DUTY CYCLE,THE ROTOR WILL SPIN AT MINIMUM SPEED.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE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

12. SPEED VS PWM CONTROL SIGNAL:

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

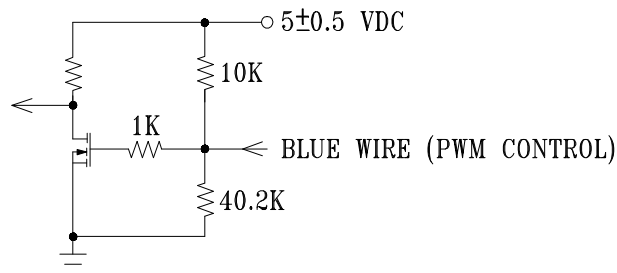
| DUTY CYCLE (%) | FAN ONLY       |                  | FAN ON SINK    |                  |
|----------------|----------------|------------------|----------------|------------------|
|                | SPEED (R.P.M.) | CURRENT (A) TYP. | SPEED (R.P.M.) | CURRENT (A) TYP. |
| 100            | 7300±10%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

\* PWM SIGNAL



- 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 “ 4.7 $\mu$ F or greater” capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.**