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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China




## Application: (Intel Core i7-Per) Picture:

Extreme edition sequence  
Intel LGA1366 Bloomfield(45nm) CPU  
Core i7 940/920/950

## Thermal & Mechanical Spec.:

Thermal performance for 130W CPU  
HSK Assembly Weight: 540 g (ref.)  
Clipping Force: 16 Kgf (ref.)

## Component Specification:

1. Heat Sink  
Type: Thermal Shrink with Cu core  
Material: Aluminum A6063 & Cu C1100 or Equivalent.  
Dimension: 100\*100\*40 mm
2. Thermal interface material  
Material: Dow-Corning TC-5630 or Equivalent 
3. Fan *(90x20mm with Thermistor & PWM Control)*  
Rated Voltage: 12 V  
Life Time:  
Superflo bearing 50000 hrs  
Connector:
  - a. Lead wire: UL 1430 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-A9020S01

Customer Part No.:

Spec Issue Date .: \_\_\_\_\_  
12/28/2015

Spec Revision : 01  
\_\_\_\_\_

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                         | REEK.LI 11/3'09       | Charles Chen 11/3'09 | Alex-Hsia 11/3'09  |            |
| 01  | CHANGE TIM FROM TC-1996 TO TC-5630 | Charles Chen 12/28'15 | Alex-Hsia 12/28'15   | Alex-Hsia 12/28'15 |            |
| Description:<br>SAMPLE REVISION CODE LIST |                                    |                       |                      |                    |            |
| Part No.                                  |                                    |                       |                      |                    | REV        |
| DELTA MODEL :<br>FHS-A9020S01             |                                    |                       | TOTAL 25 PAGE        |                    | 01         |



**Delta Electronics Corp.**

# **CONTENTS**

| <b>Item</b> | <b>Element Description</b> | <b>Page</b> | <b>Note</b> |
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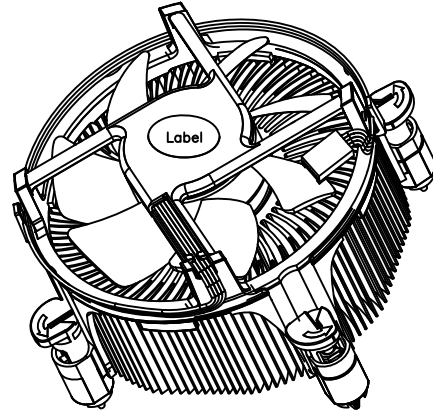
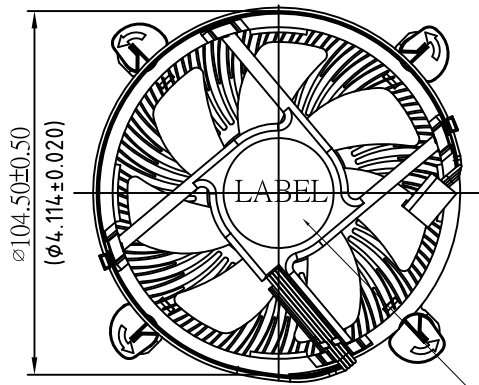
**Delta Electronics Corp.**

## **2. PRINT**

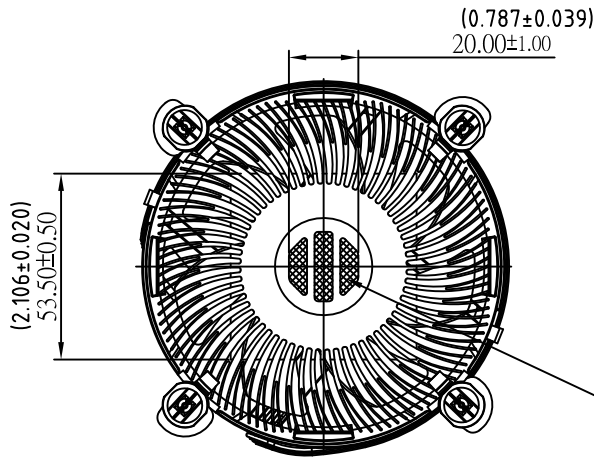
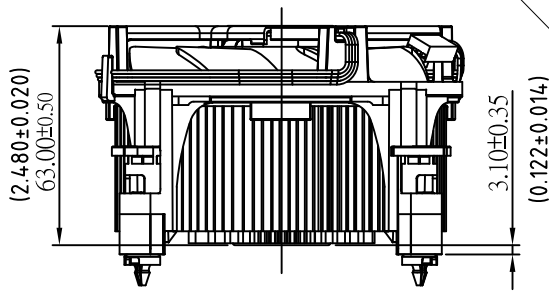
**Assembly Drawing**

**Parts Drawing**

DRAWING:




FAN LABEL P/N:3266708400



Dow Corning TC-5630 P/N:4021107300  
 STENCIL THICKNESS=0.20MM(MIN.),0.22MM(MAX.)  
 TIM WEIGHT ON HSK MUST BE 112.5mg+/-30mg

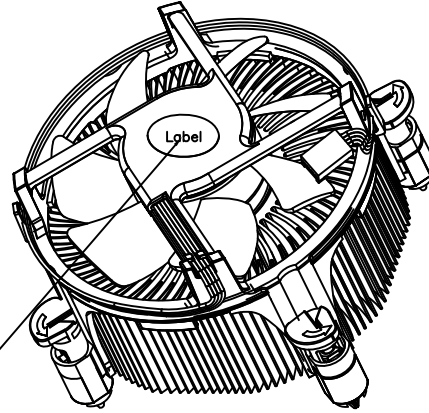
UNIT:  $\frac{\text{mm}}{\text{(INCH)}}$

|  |  |  |
|--|--|--|
|  <b>台達電子工業股份有限公司</b><br><b>DELTA ELECTRONICS, INC.</b>  | <b>DELTA MODEL:</b><br>FHS-A9020S01                          | <b>Drawn:</b><br>Charles Chen 12/28'15 |
|  | <b>CUSTOMER NAME:</b> -----<br><b>CUSTOMER P/N:</b> -----    |  |
| 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.   | <b>Description:</b> PRODUCTION SPEC.<br>(PHYSICAL DIMENSION) |  |
| <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~600 :±1.5<br>>30~100 :±0.35 X :±0.3 100~150 :±0.25 300~350 :±0.45 600~900 :±2.4<br>>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 | <b>Part No.</b><br>FHS-A9020S01-PD                           | <b>REV.</b><br>---                     |
| <b>SCALE</b> --- <b>UNIT</b> mm <b>USED ON</b> COOLER  | <b>A4</b><br><b>SIZE</b>                                     | <b>SHEET 1 OF 2</b> <b>ISSUE DATE:</b> |






DATECODE POSITION  
TYPE: WHITE INK

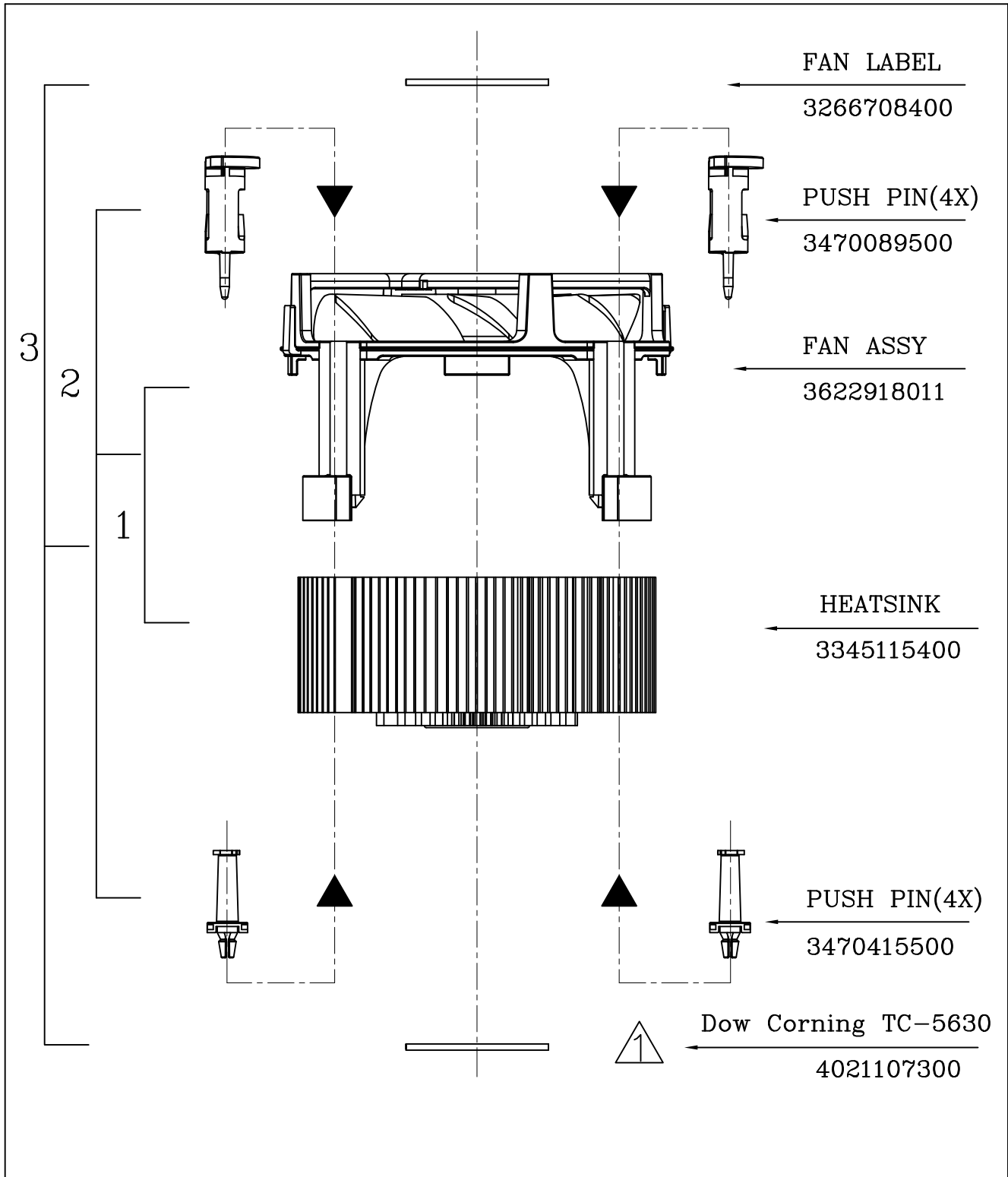




DATECODE POSITION

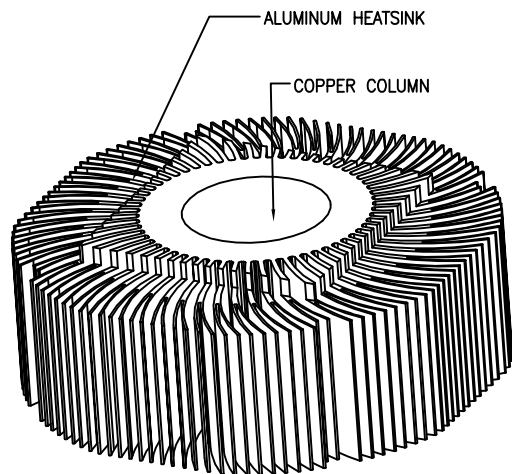
NOTE:

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

|   |  |  |
|---|--|--|
|  <b>台達電子工業股份有限公司</b><br><b>DELTA ELECTRONICS, INC.</b>   | <b>DELTA MODEL:</b><br>FHS-A9020S01  | <b>Drawn:</b><br>Charles Chen 12/28'15   |
|   | <b>CUSTOMER NAME:</b> -----  |  |
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| <b>DIMENSIONAL TOLERANCES</b><br>( ) ( ) ( )  | <b>HOLES : ±0.05</b>   | <b>ANGLES : ±0.5°</b><br>( )   |
| <30 :±0.25<br>>30~100 :±0.35<br>>100~300 :±0.5<br>ABOVE 300:±0.6  | <b>DECIMALS</b><br>UP~100 :±0.2<br>100~150 :±0.25<br>150~200 :±0.3<br>200~250 :±0.35 | <b>ANGLES</b><br>250~300 :±0.4<br>300~350 :±0.45<br>350~400 :±0.5<br>400~500 :±0.6<br>500~600 :±0.7<br>600~900 :±2.4<br>900~OVER :±3.1 |
| <b>SCALE</b> ---  | <b>UNIT</b> mm   | <b>USED ON</b> COOLER  |
| <b>THIRD ANGLE PROJECTION</b>   | <b>Description:</b> PRODUCTION SPEC.<br>(PHYSICAL DIMENSION)                         | <b>REV.</b>  |
| <b>A4</b><br><b>SIZE</b>  | <b>Part No.</b><br>FHS-A9020S01-PD   | ---  |
| <b>SHEET 2 OF 2</b>   | <b>ISSUE DATE:</b>   | ---  |

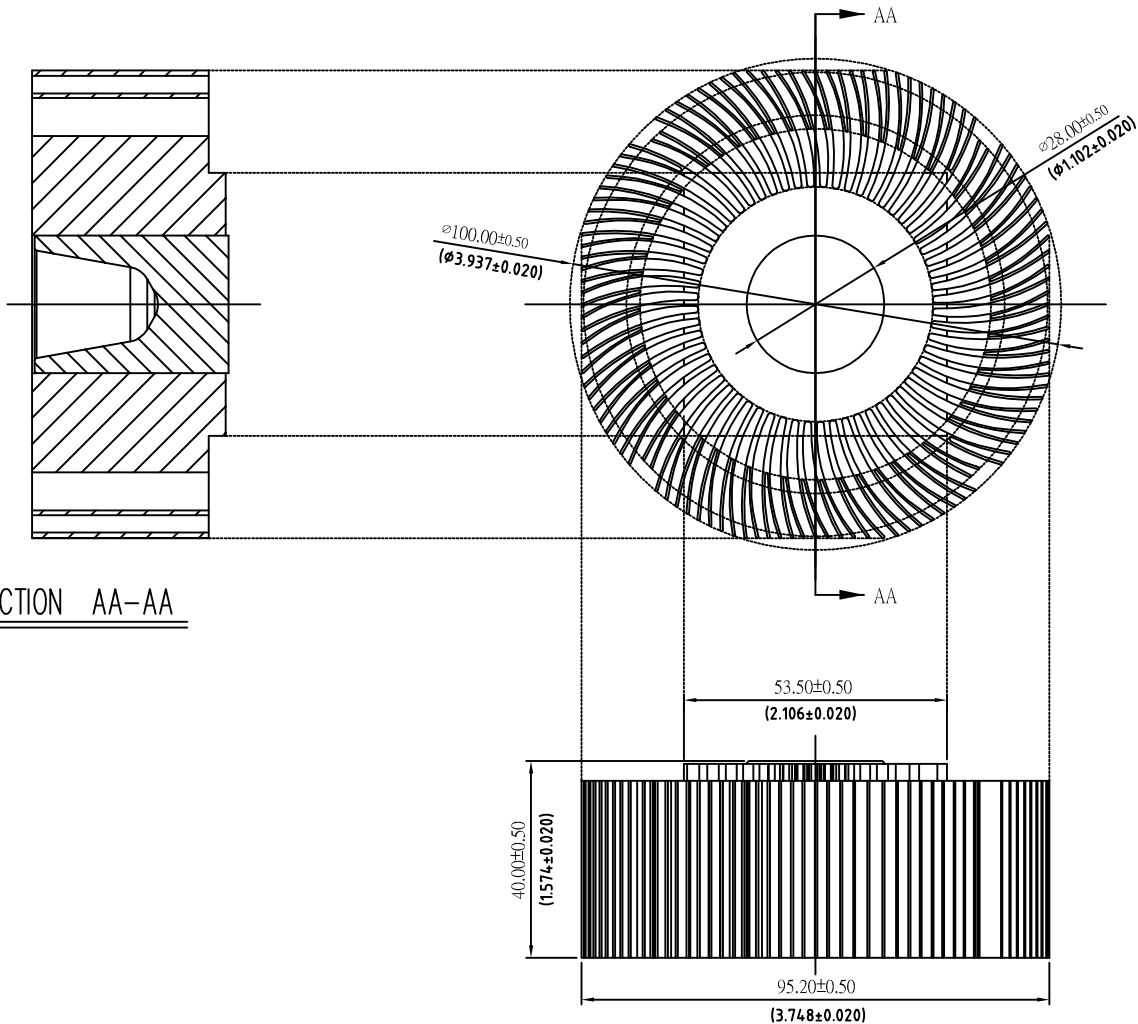


|  |   |  |
|--|---|--|
|  <b>台達電子工業股份有限公司</b><br><b>DELTA ELECTRONICS, INC.</b>  | <b>DELTA MODEL:</b><br>FHS-A9020S01   | <b>Drawn:</b><br>Charles Chen 12/28'15 |
|  | <b>CUSTOMER NAME:</b><br>-----  | <b>CUSTOMER P/N:</b><br>-----          |
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| <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~600 :±1.5<br>>30~100 :±0.35 X :±0.3 100~150 :±0.25 300~350 :±0.45 600~900 :±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 |  | <b>Part No.</b> FHS-A9020S01           |
| <b>SCALE</b> --- <b>UNIT</b> mm <b>USED ON</b> COOLER  | <b>SIZE</b> A4  | <b>SHEET 1 OF 1</b> <b>ISSUE DATE:</b> |



ALUMINUM HEATSINK


COPPER COLUMN



SECTION AA-AA

NOTE

1. MATERIAL : AL A6063 T5 & Cu1100.
2. UNLESS OTHERWISE SPECIFIED - ALL ROUNDS & FILLETS R0.1, AND BURRS & SHARP EDGES TO BE WITHIN 0.1.
3. APPEARANCE OF SURFACES TO BE UNIFORM, AND FREE OF DUST, METAL FLAKES, ADHESIVES, OIL, BLEMISHES AND SCRATCHES.

|  |  |   |  |
|--|--|---|--|
|  <b>台達電子工業股份有限公司</b><br>DELTA ELECTRONICS, INC.   |  | Drawn: REEK.LI 11/3/09  |  |
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| <b>DIMENSIONAL TOLERANCES</b><br>( ) : ±0.25<br>( ) : ±0.35<br>( ) : ±0.5<br>( ) : ±0.6<br>( ) : ±0.1  |  | <b>HOLES : ±0.05</b><br>( ) : ±0.2<br>( ) : ±0.25<br>( ) : ±0.3<br>( ) : ±0.35<br>( ) : ±0.4<br>( ) : ±0.45<br>( ) : ±0.5<br>( ) : ±0.6<br>( ) : ±0.8 |  |
| SCALE 1/1 UNIT mm USED ON COOLER   |  | PART NO.: 3345115400<br>SHEET 1 OF 1  |  |
| A4 SIZE  |  | REV. --   |  |

1

2

3

4

A

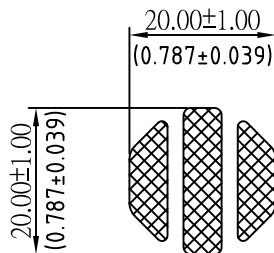
A

B



B

C

C



- NOTES:
1. THICKNESS: 0.20mm
  2. VENDOR P/N: DOW CORNING TC-5630
  3. COLOR: GRAY.
  4. THERMAL CONDUCTIVITY: 4.5 W/m-°C
  5. THERMAL CONTACT RESISTANCE: 0.06 °C-cm<sup>2</sup>/W @40psi
  6. GROSS WEIGHT: 112.5±30 mg
  7. VENDOR : DOW CORNING
  8. MUST MEET DELTA'S SPEC : 10000-0162

|   |  |  |  |
|---|--|--|--|
|  <b>台達電子工業股份有限公司</b><br>DELTA ELECTRONICS, INC.  |  | Drawn: Charles Chen 12/28'15   |  |
| 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 APPARATUS OR DEVICES WITHOUT PERMISSION.  |  |  DESCRIPTION:<br><b>THERMAL INTERFACE</b> |  |
| <b>DIMENSIONAL TOLERANCES</b><br>( ) : ±0.25    (✓) : ±0.5    ( ) : ±0.25    ( ) : ±0.5<br><30 : ±0.25    DECIMALS    UP-100 : ±0.2    250-300 : ±0.4    UP-600 : ±1.5<br>>30-100 : ±0.25    X : ±0.5    100-150 : ±0.25    300-350 : ±0.45    600-900 : ±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    300-250 : ±0.35 |  | PART NO.:<br><b>4021107300</b>   |  |
| SCALE 1/1    UNIT mm    USED ON COOLER  |  | REV. --<br>SHEET 1 OF 1  |  |

1

2

3

4



**Delta Electronics Corp.**

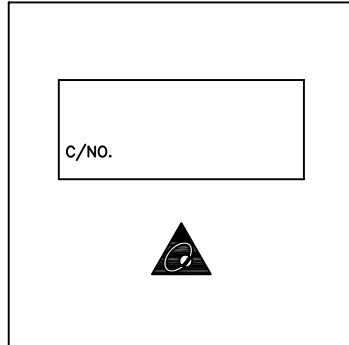
### **3. PACKING PLAN**

#### **Packing Specification**

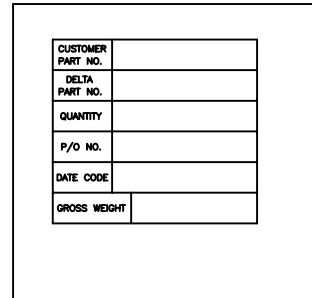
|                   |          |                          |                  |                |
|-------------------|----------|--------------------------|------------------|----------------|
| CARTON ILLUSTRATE | SIZE     | 475(L)*360(w)*205(H)(mm) | PACKING QUANTITY | 2LAYERS/CARTON |
|                   | MATERIAL | 3 LAYERS"AB" FLUTE       | CARTON WEIGHT    | 0.62 kg (REF.) |

CARTON OUTSIDE ILLUSTRATE

FRONT

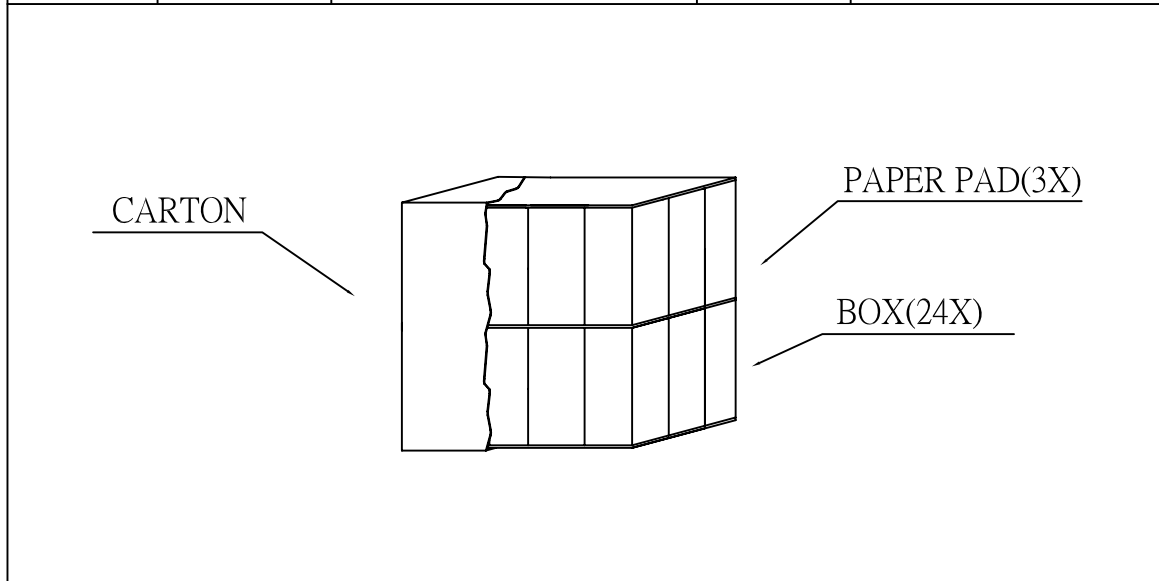




BACK



(ONE LABEL PER CARTON)

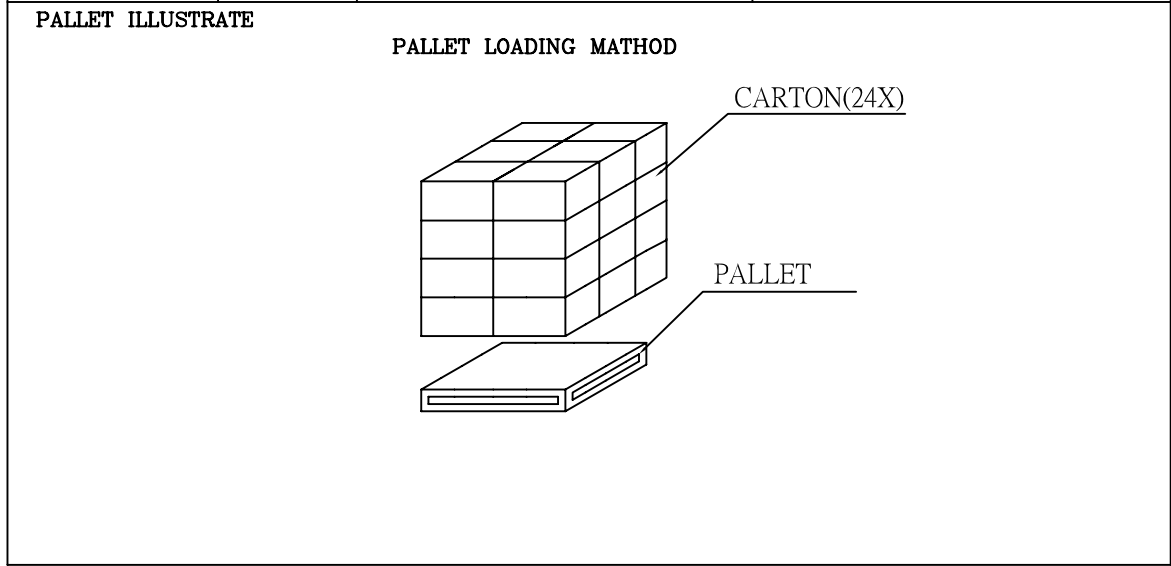
|                             |                 |                         |                  |               |
|-----------------------------|-----------------|-------------------------|------------------|---------------|
| PET TRAY PACKING ILLUSTRATE | SIZE            | 112(L)*112(w)*33(H)(mm) | PACKING QUANTITY | 1PCS/PET TRAY |
|                             | MATERIAL        | PET TRAY                |                  |               |
|                             | MATERIAL WEIGHT | 6g (REF.)               |                  |               |



|  |  |                          |
|--|--|--------------------------|
|  <b>台達電子工業股份有限公司</b><br>DELTA ELECTRONICS, INC.   | DELTA MODEL:   | Drawn:                   |
|  | FHS-A9020S01   | REEK.LI                  |
| 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 APPARATUS OR DEVICES WITHOUT PERMISSION.   | CUSTOMER NAME:   | -----                    |
|  | CUSTOMER P/N:  | -----                    |
| DIMENSIONAL TOLERANCES<br>( ) ( ) ( ) HOLES : ±0.05 ANGLES : ±0.5°<br><30 ±0.25 DECIMALS UP~100 ±0.2 250~300 ±0.4 UP~600 ±1.5<br>>30~100 ±0.35 X ±0.3 100~150 ±0.25 300~350 ±0.45 600~900 ±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 ASSMBLY) | REV.                     |
| SCALE --- UNIT mm USED ON COOLER   | A4 SIZE  | Part No. FHS-A9020S01-PA |
|  | SHEET 1 OF 2   | ISSUE DATE: ---          |

|   |                         |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|---|-------------------------|--------------------------------------|--------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|--------|--------|--------|--------|
| PART NO.  | FHS-A9020S01            |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| BASIC DATA  | QUANTITY/CARTON         | 24PCS (2 LAYERS/CARTON, 12PCS/LAYER) |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|   | PRODUCTION NET WEIGHT   | 13kg (REF.)                          |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|   | PRODUCTION GROSS WEIGHT | 14.5kg (REF.)                        |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| 20(ft)CONTAINER ILLUSTRATE  | SIZE                    | 5.889(L)*2.352(w)*2.386(H)m          |        | PACKING QUANTITY   |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
|   | CONTAINER               | STEEL                                |        | 20PALLET/CONTAINER |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| CONTAINER FORM  |                         |                                      |        | FRONT VIEW         |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| 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> <p style="text-align: center;">TOP VIEW</p> |                         |                                      |        | 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> <p style="text-align: center;">FRONT VIEW</p> | PALLET | PALLET | PALLET | PALLET |
| PALLET  | PALLET                  | PALLET                               | PALLET | PALLET             |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| PALLET  | PALLET                  | PALLET                               | PALLET | PALLET             |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| PALLET  | PALLET                  |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |
| PALLET  | PALLET                  |                                      |        |                    |        |        |        |        |        |        |        |        |        |   |        |        |        |        |

|                           |        |                       |                  |                   |
|---------------------------|--------|-----------------------|------------------|-------------------|
| 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-A9020S01             | 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 APPARATUS 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~600 :±1.5<br>>30~100 :±0.35 X :±0.3 100~150 :±0.25 300~350 :±0.45 600~900 :±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-A9020S01-PA | REV.   | ---           |
| SCALE --- UNIT mm USED ON COOLER   | A4<br>SIZE SHEET 2 OF 2  | ISSUE DATE:              |        |               |



**Delta Electronics Corp.**

## **4. FAN**

### **Fan Specification**





DELTA ELECTRONICS, INC.  
 252, SHANG YING ROAD, KUEI SAN  
 TAOYUAN HSIEN 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:      | 3622918011    | REV:      |
| Delta Model NO.:   | AUC0912D-9B37 |           |
| Sample Rev:        | 01            | Issue NO: |
| Sample Issue Date: | NOV.03.2009   | Quantity: |

1. SCOPE:

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

2. CHARACTERS:

| ITEM  | DESCRIPTION  |   |
|---|--|---|
| SENSOR TEMPERATURE                                    | 30°C   | 39°C  |
| RATED VOLTAGE   | 12.0 VDC   |   |
| OPERATION VOLTAGE                                     | 10.8 - 13.2 VDC  |   |
| START UP CURRENT                                      | MAX. 1.0A  | MAX. 1.2A   |
| INPUT CURRENT   | 0.11 (MAX. 0.24) A   | 0.22 (MAX. 0.46) A  |
| INPUT POWER   | 1.32 (MAX. 2.88) W   | 2.64 (MAX. 5.52) W  |
| SPEED (FAN ONLY)                                      | 2050±200 R.P.M.  | 3000±10% R.P.M.   |
| SPEED (FAN ON SINK)                                   | 2000±200 R.P.M.  | 2900±10% R.P.M.   |
| MAX. AIR FLOW (FAN ONLY)<br>(AT ZERO STATIC PRESSURE) | 0.705 (MIN. 0.635) M <sup>3</sup> /MIN.<br>24.88 (MIN. 22.39) CFM              | 1.032 (MIN. 0.929) M <sup>3</sup> /MIN.<br>36.44 (MIN. 32.80) CFM               |
| MAX. AIR PRESSURE (FAN ONLY)<br>(AT ZERO AIRFLOW)     | 1.45 (MIN. 1.17) mmH <sub>2</sub> O<br>0.057 (MIN. 0.046) inchH <sub>2</sub> O | 2.88 (MIN. 2.33 ) mmH <sub>2</sub> O<br>0.114 (MIN. 0.092) inchH <sub>2</sub> O |
| ACOUSTICAL NOISE(ON SINK AVG.)                        | 30.0 (MAX. 34.0) dB-A  | 40.0 (MAX. 44.0) dB-A   |
| INSULATION TYPE                                       | UL: CLASS A  |   |

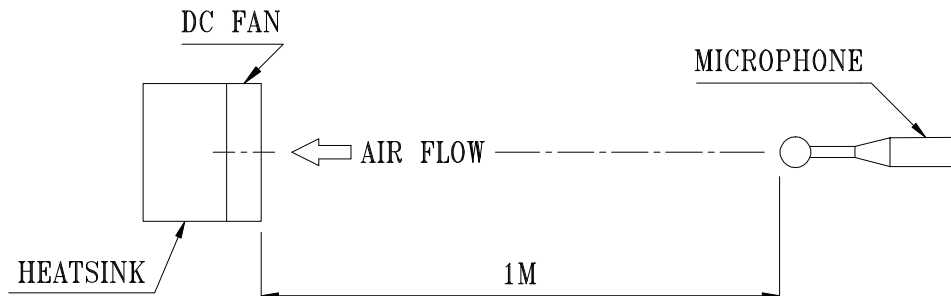
(continued)

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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        | 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 1430 -F- AWG #26<br>BLACK WIRE:NEGATIVE(-)<br>YELLOW WIRE:POSITIVE(+)<br>GREEN WIRE:TACHOMETER OUTPUT (FO0)<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
- 3-3. IMPELLER ----- PLASTIC UL: 94V-0
- 3-4. BEARING SYSTEM ----- SUPERFLO BEARINGS
- 3-5. WEIGHT ----- 80 GRAMS

4. ENVIRONMENTAL:

- 4-1. OPERATING TEMPERATURE ----- -10 TO +70 DEGREE C
- 4-2. STORAGE TEMPERATURE ----- -35 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.

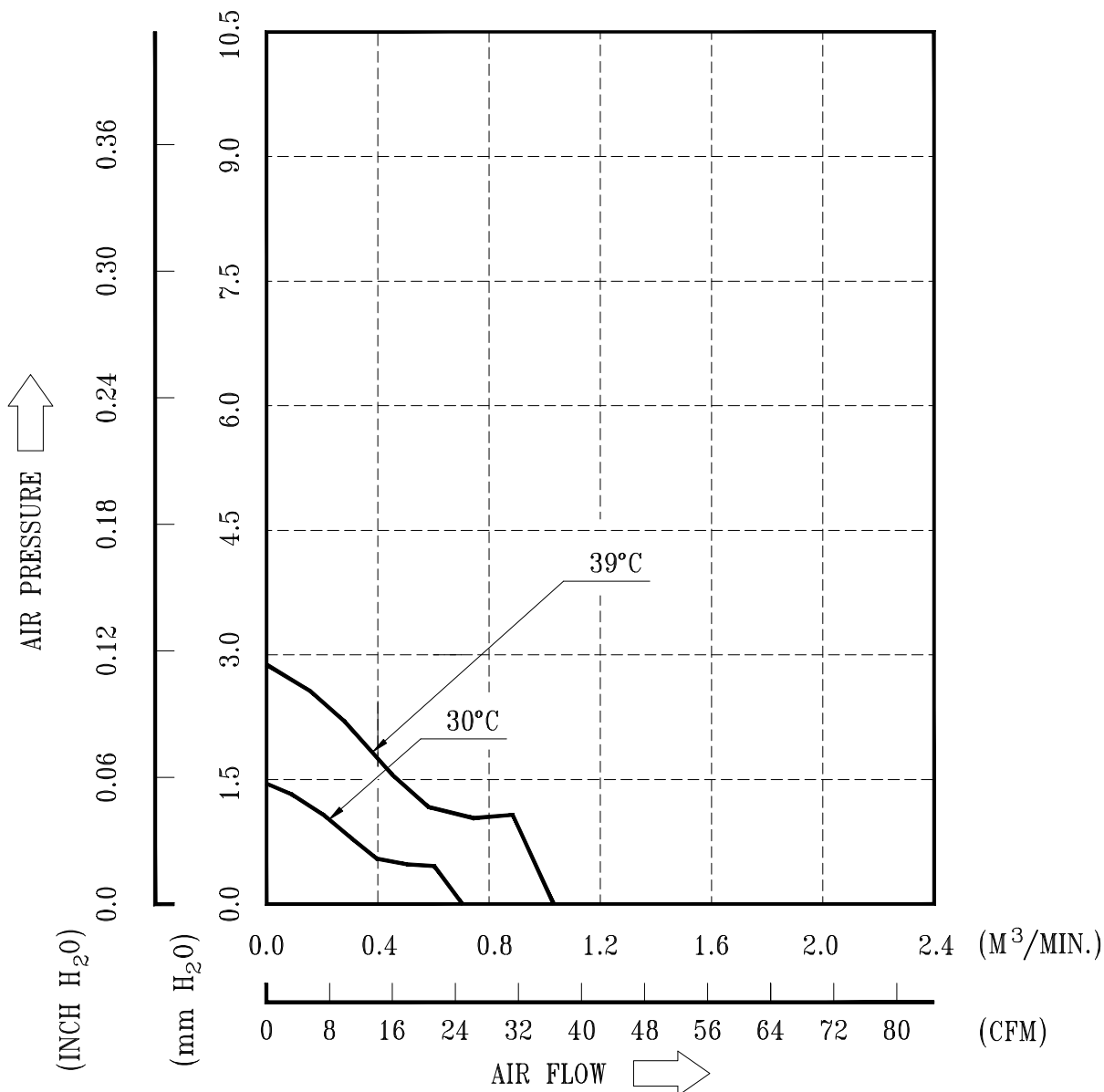
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:  
PWM 100% DUTY CYCLE



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

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9. DIMENSION DRAWING:

LABEL:

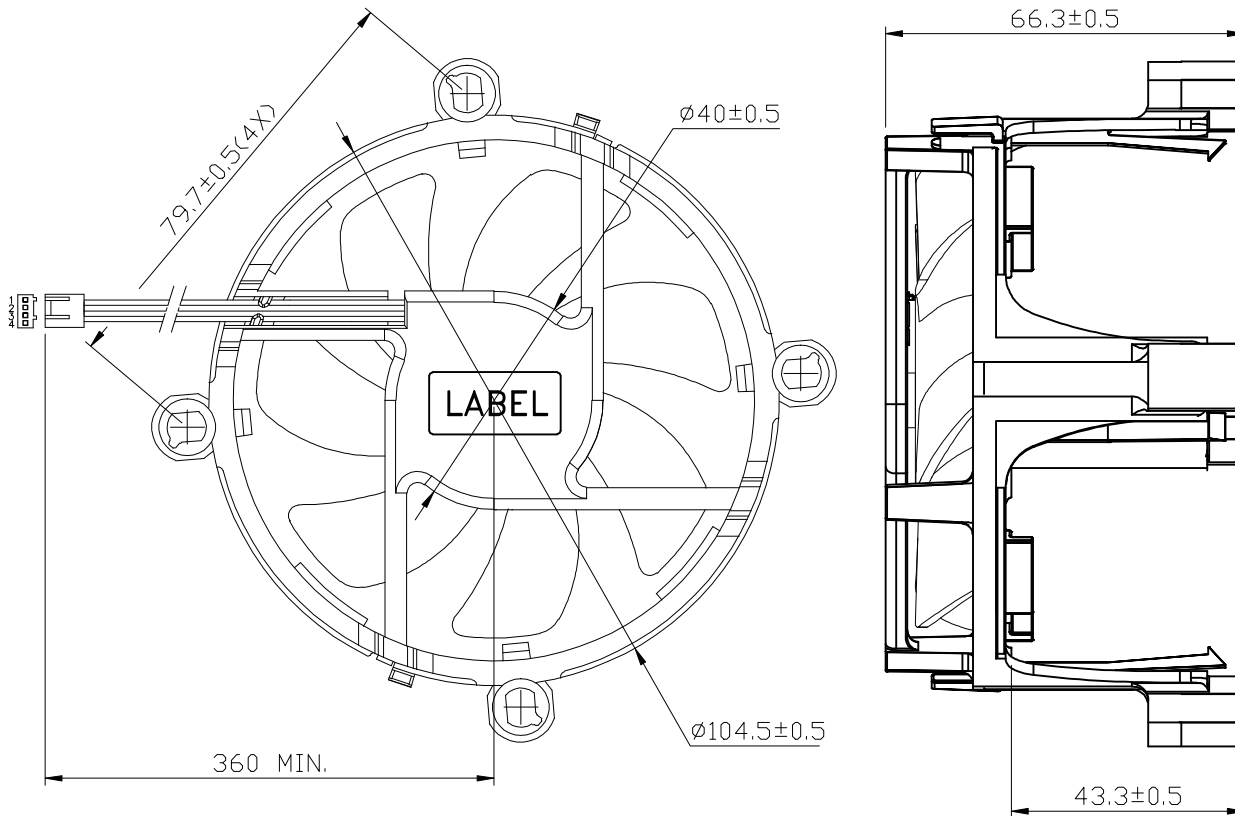
DELTA AUC0912D  
-9B37  
yymmdd  
CHINA

OR

DELTA AUC0912D  
-9B37  
yymmdd  
THAILAND

OR

DELTA AUC0912D  
-9B37  
yymmdd  
TAIWAN



- NOTE : 1. LEAD WIRE: UL 1430 -F- AWG #26  
PIN 1 : BLACK WIRE: NEGATIVE(-)  
PIN 2 : YELLOW WIRE: POSITIVE(+)  
PIN 3 : GREEN WIRE: TACHOMETER OUTPUT (FOO)  
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

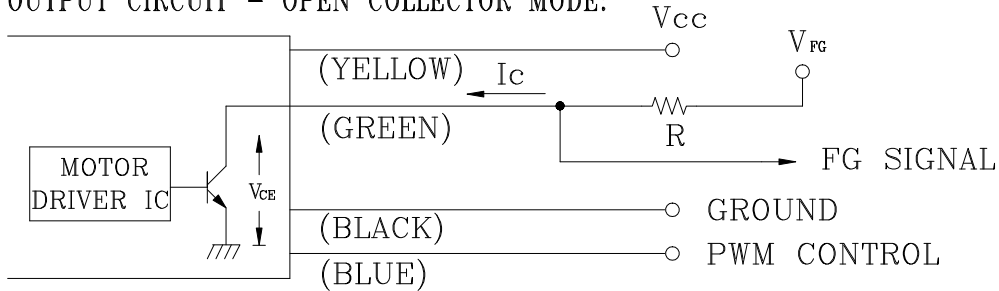
UNIT: MM

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### 10. FREQUENCY GENERATOR (FG) SIGNAL:

#### 1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



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

#### 2. SPECIFICATION:

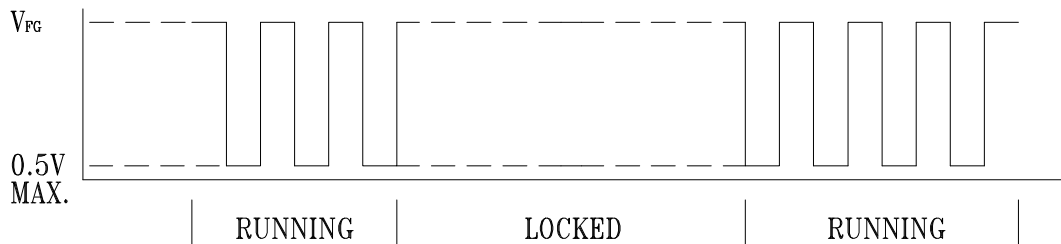
$$V_{ce(sat)} = 0.5V$$

$$V_{fg} = 5.0V \text{ TYP. } (V_{cc} \text{ MAX.})$$

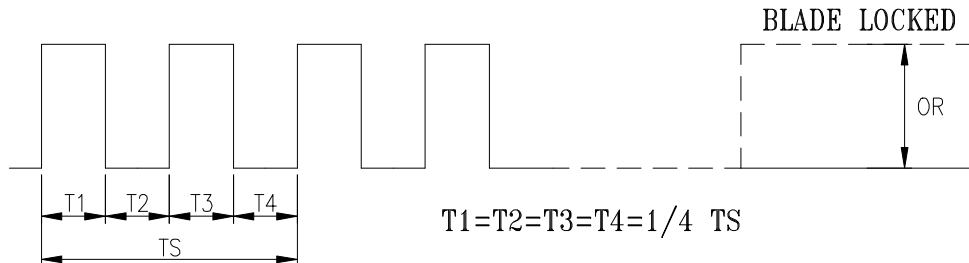
$$I_c = 10mA \text{ MAX.}$$

$$R \geq V_{fg} / I_c$$

#### 3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



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

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

\*VOLTAGE LEVEL AFTER BLADE LOCKED

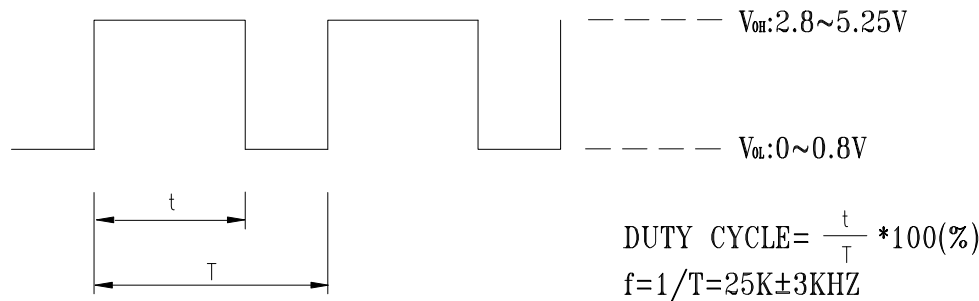
\*4 POLES

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### 11. PWM CONTROL FUNCTION:(FAN ON SINK)

#### 11-1 SIGNAL DESCRIPTION:



- AT 25K HZ 30% DUTY CYCLE, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

#### 11-2 SPEED CONTROL

TEST CONDITION : INPUT VCC=12V PWM FREQUENCY=25KHZ

##### 11-2-1 TEMPERATURE CONTROL

BELOW 30 DEGREE C, THE FAN SPEED IS 2000RPM.

ABOVE 39 DEGREE C, THE FAN SPEED IS 2900RPM.

BETWEEN 30~39 DEGREE C, THE FAN SPEED IS 2000RPM~2900RPM.

##### 11-2-2 PWM CONTROL

BELOW 30 DEGREE C

BETWEEN 0%~100% DUTY CYCLE, THE FAN SPEED IS 1000RPM~2000RPM.

ABOVE 39 DEGREE C

BETWEEN 0%~100% DUTY CYCLE, THE FAN SPEED IS 1000RPM~2900RPM.

| TEMPERATURE (°C) | DUTY CYCLE (%) | SPEED R.P.M. |
|------------------|----------------|--------------|
| 30               | 0~20           | 1000±200     |
| 30               | 100            | 2000±10%     |
| 39               | 0~20           | 1000±200     |
| 39               | 100            | 2900±10%     |

- IF THE CONTROL SIGNAL IS DISCONNECT THE FAN WILL GO TO TEMPERATURE CONTROL SPEED.

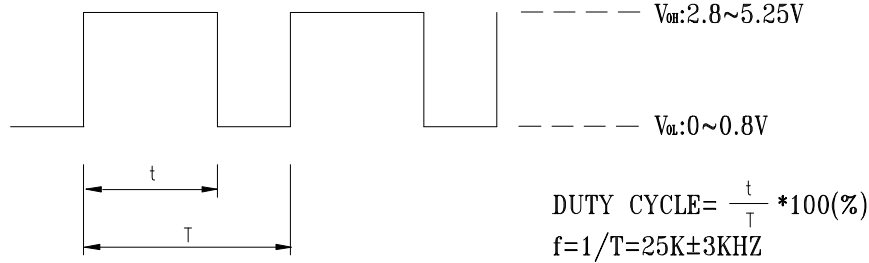


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PART NO: 3622918011  
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DELTA MODEL: AUC0912D-9B37  
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## 12. PWM CONTROL FUNCTION:(FAN ONLY)

### 12-1 SIGNAL DESCRIPTION:



- AT 25K HZ 30% DUTY CYCLE, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

### 12-2 SPEED CONTROL

TEST CONDITION : INPUT VCC=12V PWM FREQUENCY=25KHZ

#### 12-2-1 TEMPERATURE CONTROL

BELOW 30 DEGREE C, THE FAN SPEED IS 2050RPM.

ABOVE 39 DEGREE C, THE FAN SPEED IS 3000RPM.

BETWEEN 30~39 DEGREE C, THE FAN SPEED IS 2050RPM~3000RPM.

#### 12-2-2 PWM CONTROL

BELOW 30 DEGREE C

BETWEEN 0%~100% DUTY CYCLE, THE FAN SPEED IS 1050RPM~2050RPM.

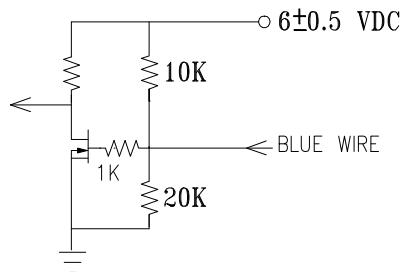
ABOVE 39 DEGREE C

BETWEEN 0%~100% DUTY CYCLE, THE FAN SPEED IS 1050RPM~3000RPM.

| TEMPERATURE (°C) | DUTY CYCLE (%) | SPEED R.P.M.    |
|------------------|----------------|-----------------|
| 30               | 0~20           | 1050±200 R.P.M. |
| 30               | 100            | 2050±200 R.P.M. |
| 39               | 0~20           | 1050±200 R.P.M. |
| 39               | 100            | 3000±10% R.P.M. |

- IF THE CONTROL SIGNAL IS DISCONNECT THE FAN WILL GO TO TEMPERATURE CONTROL SPEED.

## 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.**