


### Application:

- Intel LGA775 Conroe-L Celeron CPU
- E1000/400 sequence

### Thermal & Mechanical Spec.:

- Thermal performance for 35W CPU
- HSK Assembly Weight: 205 g (ref.)
- Clipping Force: 20 Kgf (ref.)

### Component Specification:

1. Heat Sink  
Type: Extruded HSK  
Material: Aluminum A6063 or Equivalent.  
Dimension: 90\*90\*19.05 mm
2. Thermal interface material   
Material: Dow Corning TC-5630 or Equivalent.
3. Fan (90x90x25 mm with single speed)  
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)
  - b. Housing: Molex 2695-03 22-01-3037 or equivalent
  - c. Terminal: Molex 2759T 08-50-0113 or equivalent

### Pictures



- \* All readings are typical values at rated voltage.
- \* Specifications are subject to change without notice



**Delta Electronics Corp.**

## APPROVAL SHEET

**Customer Name .:**

**Model Name.:** COOLER

**Delta Part No.:** FHS-A9025S17

**Customer Part No.:**

**Spec Issue Date .:** 01/05/2016

**Spec Revision :** 03

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

**Approved By:** \_\_\_\_\_

**Date:** \_\_\_\_\_

Approval	Check	Designer
Alex-Hsia	Charles. Chen	Skyler-Huang



# Delta Electronics Corp.

REV.	Description	Drawn	Checked	Approved	Issue Date
00	ISSUE SPEC	Skyler-Huang12/29'09	Charles Chen12/29'09	Alex-Hsia 12/29'09	
01	1. Modify the Package spec	Skyler-Huang08/09'12	Charles Chen08/09'12	Alex-Hsia 08/09'12	
02	1. Modify the Package spec	Skyler-Huang06/10'13	Charles Chen06/10'13	Alex-Hsia 06/10'13	
03	1.Change the TIM to TC-5630	Skyler-Huang1/05'16	Charles Chen1/05'16	Alex-Hsia 1/05'16	
Description:					
SAMPLE REVISION CODE LIST					
Part No.					REV
DELTA MODEL :			TOTAL 23 PAGE		03
FHS-A9025S17					



**Delta Electronics Corp.**

# **CONTENTS**

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4	Fan	15	



# Delta Electronics Corp.

## 1. SPECIFICATION

### Characters

Item	Description
Scope	THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE FAN HEATSINK
Application	INTEL P4 CPU COOLER
Specification	
a: Thermal Resistance	0.640 (°C/W) (REF.)
b: total weight	205 g (REF.)
c: clip force	20 kgf (REF.)

### BOM

Item	Part Name	Material	Part NO.	Q'TY	Remark
1	FAN	PBT	3622916811	1	
2	HSK	AL A6063	3346208500	1	
3	FASTENER CAP	PC	3470415400	4	
4	FASTENER BASE	PC	3470415500	4	
5	LABEL	PE	3266708200	1	
6	TIM	DOW TC-1996	4021107300	0.1125g	Rev03



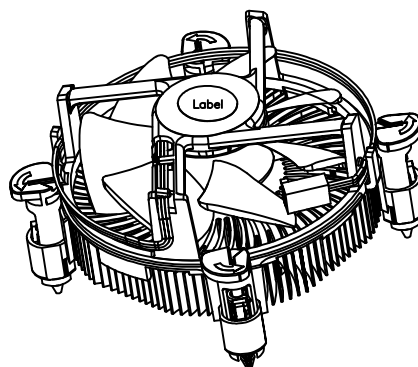
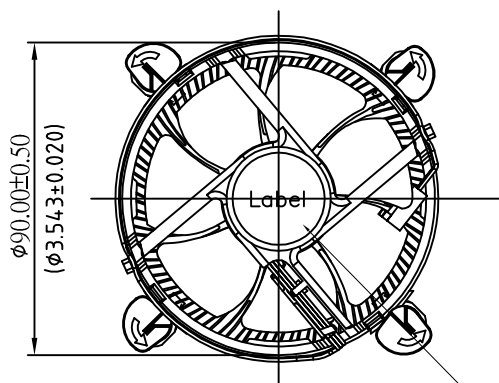
**Delta Electronics Corp.**

## **2. PRINT**

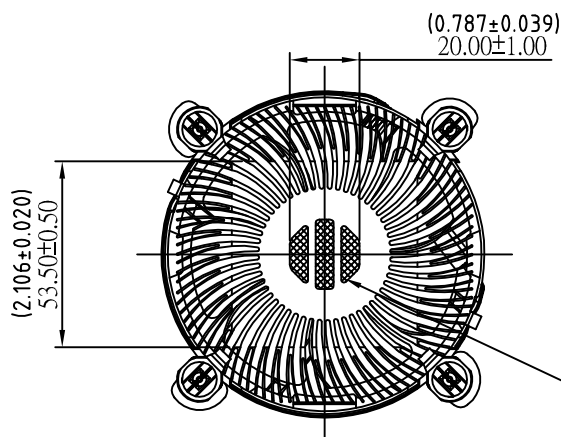
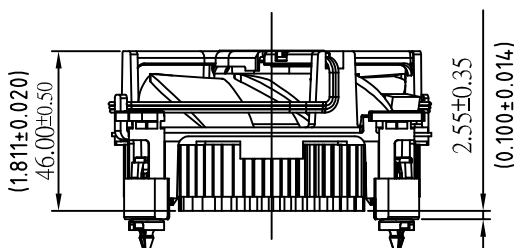
**Assembly Drawing**

**Parts Drawing**

DRAWING:



FAN LABEL P/N:3266708200





Dow Corning TC-5630 P/N:4021107300

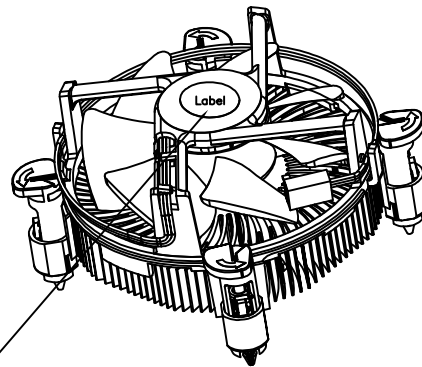
STENCIL THICKNESS=0.20(TYP.) 0.22(MAX.)

TIM WEIGHT ON HSK MUST BE 112.5mg+/-30mg

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

\*NOTE: PLEASE ATTENTION FAN LABEL ORIENTATION.



 台達電子工業股份有限公司 DELTA ELECTRONICS, INC.				DELTA MODEL: FHS-A9025S17		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: -----									
<div>DIMENSIONAL TOLERANCES</div> <div><div><div>( )</div><div>&lt;30 :±0.25</div><div>&gt;30~100 :±0.35</div><div>&gt;100~300 :±0.5</div><div>ABOVE 300 :±0.6</div></div><div><div>( )</div><div>DECIMALS X :±0.3</div><div>XX :±0.2</div><div>XXX :±0.1</div></div><div><div>( )</div><div>UP~100 :±0.2</div><div>100~150 :±0.25</div><div>150~200 :±0.3</div><div>200~250 :±0.35</div></div><div><div>( )</div><div>250~300 :±0.4</div><div>300~350 :±0.45</div><div>350~400 :±0.5</div></div><div><div>( )</div><div>UP~600 :±1.5</div><div>600~900 :±2.4</div><div>900~OVER :±3.1</div></div></div>				 Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)		Part No. FHS-A9025S17-PD		REV. 03					
SCALE ---		UNIT mm		USED ON		COOLER		A4 SIZE		SHEET 1 OF 2		ISSUE DATE:	



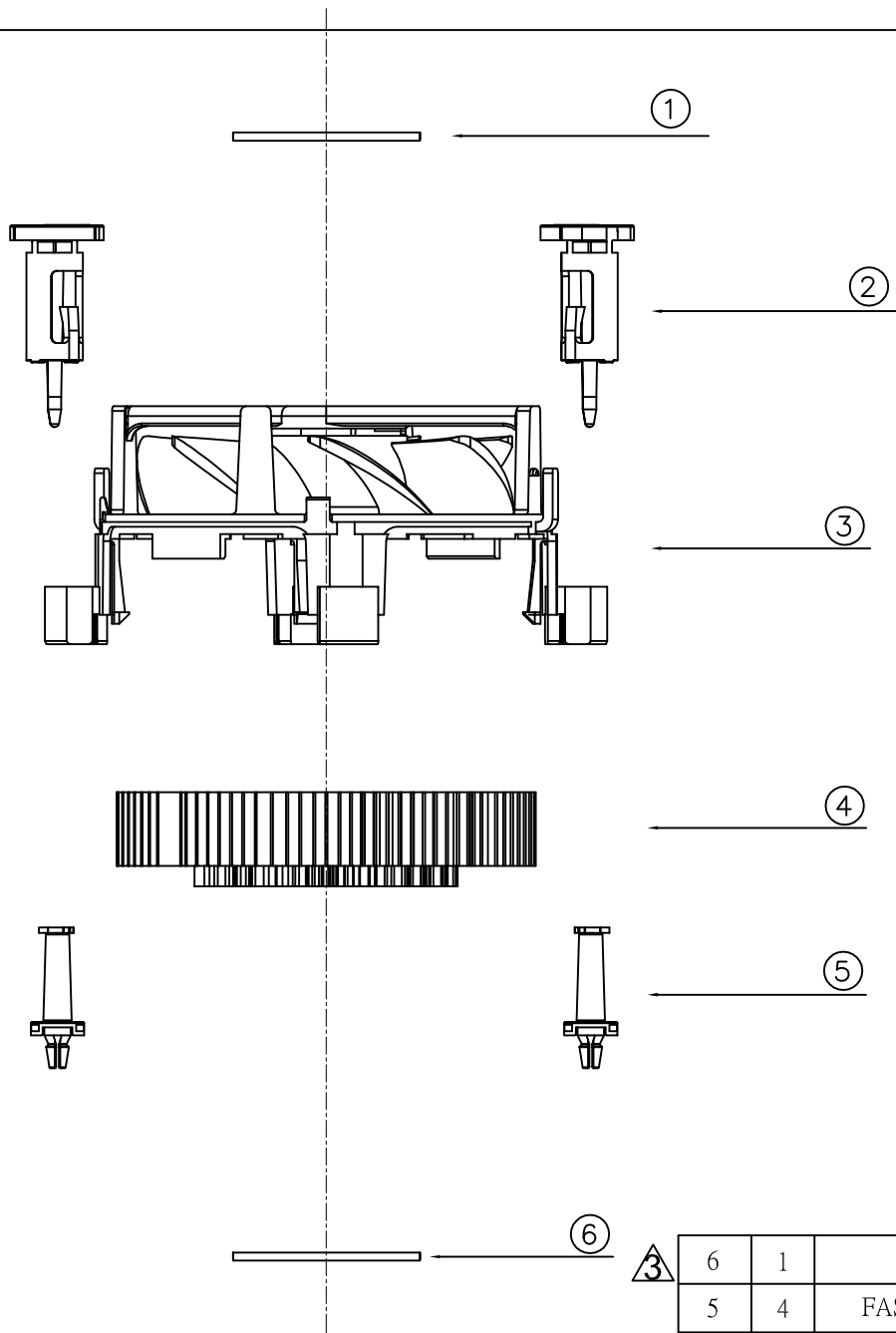
DATECODE POSITION

NOTE:

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

 <div>台達電子工業股份有限公司 DELTA ELECTRONICS, INC.</div>				DELTA MODEL: FHS-A9025S17		Drawn: Skyler Huang		
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				CUSTOMER P/N: -----				
<div>DIMENSIONAL TOLERANCES</div> <div><div><div>( )</div><div>( )</div><div>( )</div></div><div><div>&lt;30 :±0.25</div><div>&gt;30~100 :±0.35</div><div>&gt;100~300 :±0.5</div><div>ABOVE 300 :±0.6</div></div><div><div>DECIMALS</div><div>X</div><div>XX</div><div>XXX</div></div><div><div>UP~100 :±0.2</div><div>100~150 :±0.25</div><div>150~200 :±0.3</div><div>200~250 :±0.35</div></div><div><div>250~300 :±0.4</div><div>300~350 :±0.45</div><div>350~400 :±0.5</div><div></div></div><div><div>UP~600 :±1.5</div><div>600~900 :±2.4</div><div>900~OVER :±3.1</div><div></div></div></div>				 Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)				
				A4 SIZE		Part No. FHS-A9025S17-PD		REV. 03
						SHEET 2 OF 2		
				SCALE ---		UNIT mm	USED ON	COOLER





6	1	TIM	4021107300
5	4	FASTENER BASE	3470415500
4	1	HEATSINK	3346208500
3	1	FAN	3622916811
2	4	FASTENER CAP	3470415400
1	1	FAN LABEL	3266708200
ITEM	QTY	DESCRIPTION	PART NUMBER



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DELTA MODEL:  
FHS-A9025S17

Drawn:  
Skyler Huang

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CUSTOMER NAME: -----

CUSTOMER P/N: -----

DIMENSIONAL TOLERANCES		HOLES : $\pm 0.05$		ANGLES : $\pm 0.5^\circ$	
( )	( )	( )	( )	( )	( )
<30	$\pm 0.25$	DECIMALS	UP~100 $\pm 0.2$	250~300 $\pm 0.4$	UP~600 $\pm 1.5$
>30~100	$\pm 0.35$	X	$\pm 0.3$	100~150 $\pm 0.25$	300~350 $\pm 0.45$
>100~300	$\pm 0.5$	XX	$\pm 0.2$	150~200 $\pm 0.3$	600~900 $\pm 2.4$
ABOVE 300	$\pm 0.6$	XXX	$\pm 0.1$	200~250 $\pm 0.35$	900~OVER $\pm 3.1$



Description: PRODUCTION SPEC.  
(ASSEMBLY ORDER)

A4

Part No. FHS-A9025S17-AS

REV.

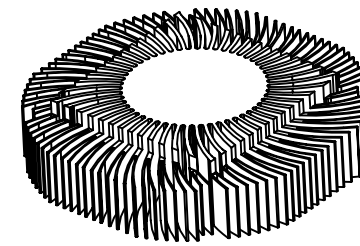
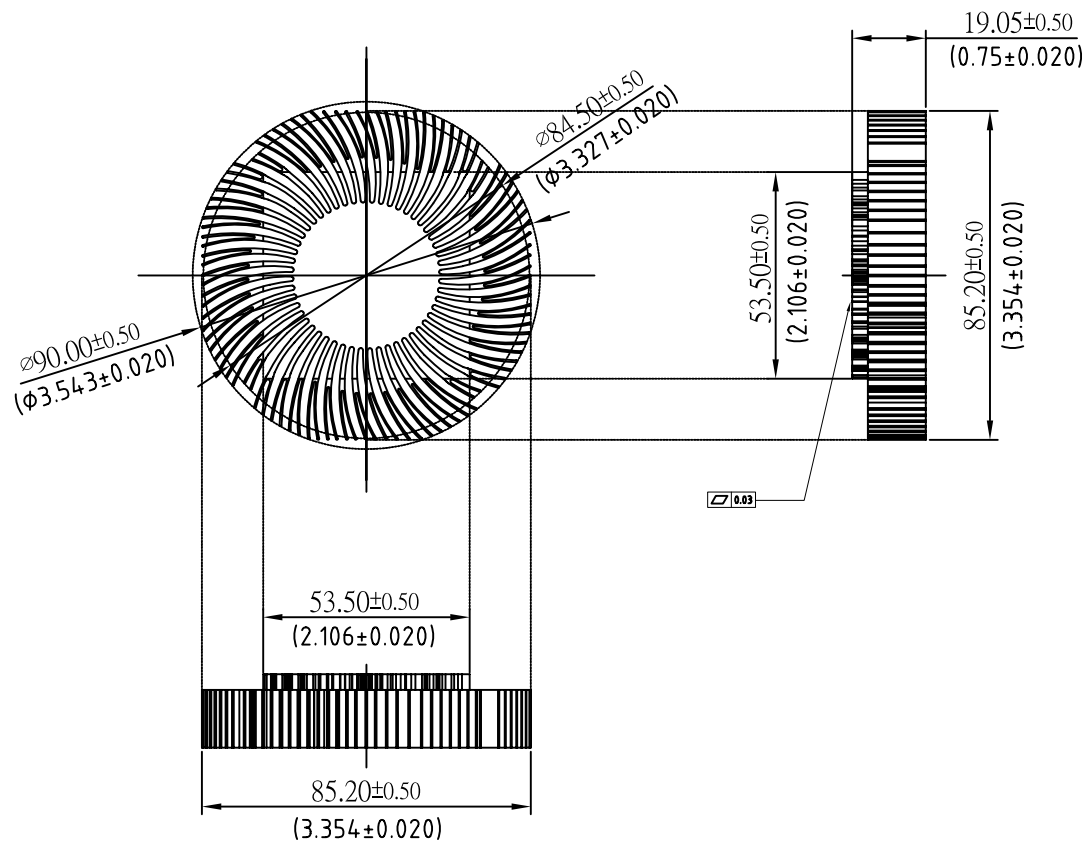
03

SCALE --- UNIT mm USED ON COOLER

SIZE


SHEET 1 OF 1 ISSUE DATE:

1 2 3 4

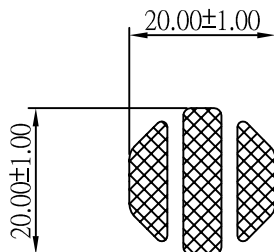


NOTE



1. MATERIAL : AL A6063 T5.
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.

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DIMENSIONAL TOLERANCES ( ) ( ) <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 XX :±0.2 150~200 :±0.3 350~400 :±0.5 900~OVER :±3.1 ABOVE 300 :±0.6 XXX :±0.1 200~250 :±0.35					PART NO.: 3346208500	
SCALE 1/1 UNIT mm USED ON COOLER					SHEET 1 OF 1	
A4 SIZE					REV. --	

1 2 3 4



- 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



<div></div> <div>台達電子工業股份有限公司 DELTA ELECTRONICS, INC.</div>					Drawn: Skyler Huang			
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DIMENSIONAL TOLERANCES ( ) (✓) ( ) HOLES : ±0.05 ANGLES : ±0.5° (<30 : ±0.25 DECIMALS UP~100 : ±0.2 250~300 : ±0.4 UP~600 : ±1.6 >30~100 : ±0.35 X : ±0.5 100~150 : ±0.25 300~350 : ±0.45 600~900 : ±2.4 >100~300 : ±0.5 XX : ±0.2 150~200 : ±0.3 350~400 : ±0.5 900~OVER : ±3.1 ABOVE 300 : ±0.6 XXX : ±0.1 300~250 : ±0.35					A4 SIZE	PART NO.: 4021107300		REV. 03
SCALE 1/1 UNIT mm USED ON COOLER						SHEET 1 OF 1		



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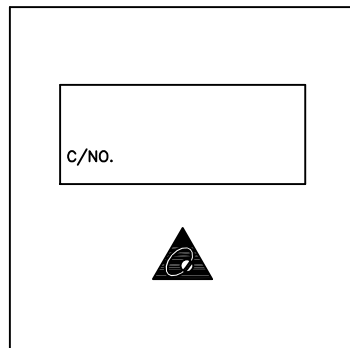
### **3. PACKING PLAN**

#### **Packing Specification**

CARTON ILLUSTRATE	SIZE	524(L)*225(w)*475(H)(mm) 	PACKING QUANTITY	6LAYERS/CARTON 
	MATERIAL	3 LAYERS"AB" FLUTE	CARTON WEIGHT	0.62 kg (REF.)

CARTON OUTSIDE IEMONDTRATE

FRONT



BACK

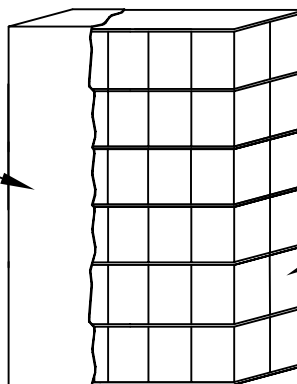
CUSTOMER PART NO.	
DELTA PART NO.	
QUANTITY	
P/O NO.	
DATE CODE	
GROSS WEIGHT	

(ONE LABEL PER CARTON)

PET TRAY PACKING ILLUSTRATE	SIZE	94(L)*94(w)*30(H)(mm)	PACKING QUANTITY	1PCS/PET TRAY
	MATERIAL	PET TRAY		
	MATERIAL WEIGHT	6g (REF.)		



CARTON



PAPER PAD(7X)

BOX(60X)



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DELTA ELECTRONICS, INC.

DELTA MODEL:  
FHS-A9025S17

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-A9025S17-PA


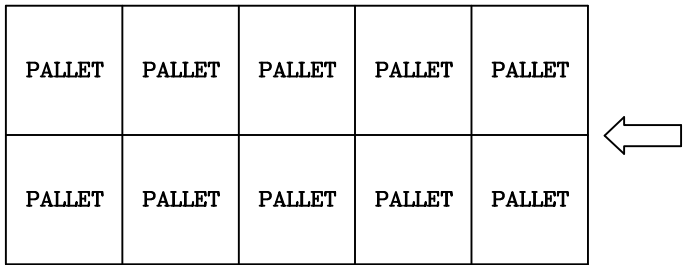

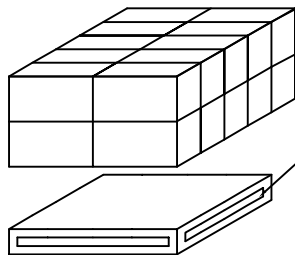
REV.

---

SCALE --- UNIT mm USED ON COOLER

SIZE

SHEET 1 OF 2 ISSUE DATE:

PART NO.	FHS-A9025S17				
BASIC DATA	QUANTITY/CARTON		60PCS (6 LAYERS/CARTON, 10PCS/LAYER) $\triangle 1$		
	PRODUCTION NET WEIGHT		12.3kg (REF.) $\triangle 1$		
	PRODUCTION GROSS WEIGHT		16.1kg (REF.) $\triangle 1$		
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					
					
TOP VIEW				FRONT VIEW	
PALLET LOADING ILLUSTRATE	SIZE	117(L)*107(w)*13(H)cm		PACKING QUANTITY	20 CARTONS/PALLET
	PALLET	WOOD			
PALLET ILLUSTRATE					
 					



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DELTA ELECTRONICS, INC.

DELTA MODEL:  
FHS-A9025S17

Drawn:  
Skyler Huang

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CUSTOMER NAME: -----

CUSTOMER P/N: -----

DIMENSIONAL TOLERANCES		HOLES : $\pm 0.05$		ANGLES : $\pm 0.5^\circ$	
( )	( )	( )	( )	( )	( )
<30	$\pm 0.25$	DECIMALS	UP~100 $\pm 0.2$	250~300 $\pm 0.4$	UP~800 $\pm 1.5$
>30~100	$\pm 0.35$	X	$\pm 0.3$	100~150 $\pm 0.25$	300~350 $\pm 0.45$
>100~300	$\pm 0.5$	XX	$\pm 0.2$	150~200 $\pm 0.3$	600~900 $\pm 2.4$
ABOVE 300	$\pm 0.6$	XXX	$\pm 0.1$	200~250 $\pm 0.35$	900~OVER $\pm 3.1$



Description: PRODUCTION SPEC.  
(PACKING ASSMEBLY)

A4

Part No.  
FHS-A9025S17-PA

REV.

SCALE --- UNIT mm USED ON COOLER

SIZE

SHEET 2 OF 2 ISSUE DATE:

---



**Delta Electronics Corp.**

## **4. FAN**

### **Fan Specification**



Sample Issue Date SEP.09.2008

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 HSIEN 333, TAIWAN, R. O. C.

TEL : 886-(0)3-3591968  
 FAX : 886-(0)3-3591991

SPECIFICATION FOR APPROVAL  
 \*\*\*\*\*

Customer:	TMP BU	
Description:	DC FAN	
Customer P/N:		REV:
Delta Model NO.:	AUB0912M-8J29	
Sample Rev:	00	Issue NO:
Sample Issue Date:	SEP.09.2008	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
START UP CURRENT	MAX. 1.2 A
INPUT CURRENT	0.09 (MAX. 0.20) A
INPUT POWER	1.08 (MAX. 2.40) W
SPEED (FAN ONLY)	2250±10% R.P.M.
SPEED (FAN ON SINK)	2200±10% R.P.M.
MAX. AIR FLOW (FAN ONLY) (AT ZERO STATIC PRESSURE)	0.619 (MIN. 0.557) M <sup>3</sup> /MIN. 21.86 (MIN. 19.67) CFM
MAX. AIR PRESSURE (FAN ONLY) (AT ZERO AIRFLOW)	1.86 (MIN. 1.51) mmH <sub>2</sub> O 0.073 (MIN. 0.059) inchH <sub>2</sub> O
ACOUSTICAL NOISE(ON SINK AVG.)	27.0 (MAX. 31.0) dB-A
INSULATION TYPE	UL: CLASS A

(continued)

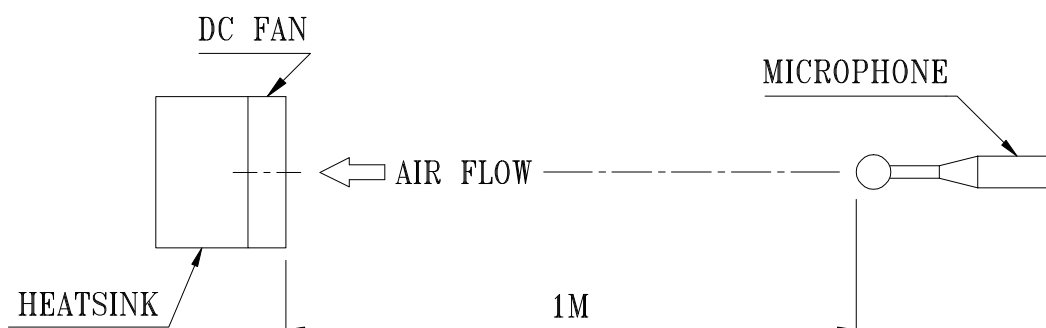
PART NO:

DELTA MODEL:

AUB0912M-8J29

INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE	50,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM NAME PLATE SIDE
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN WHEN LOCKING ROTOR
LEAD WIRE	UL 1430 -F- AWG #26 BLACK WIRE:NEGATIVE(-) YELLOW WIRE:POSITIVE(+) GREEN WIRE:TACHOMETER OUTPUT (F00)

- 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:  
-----

DELTA MODEL:           AUB0912M-8J29  
-----

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 BEARING

3-5. WEIGHT ----- 82 GRAMS

4. ENVIRONMENTAL:

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

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

4-3. OPERATING HUMIDITY ----- 5 TO 95 % RH

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

5. PROTECTION:

5-1. LOCKED ROTOR PROTECTION

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

5-2. POLARITY PROTECTION

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

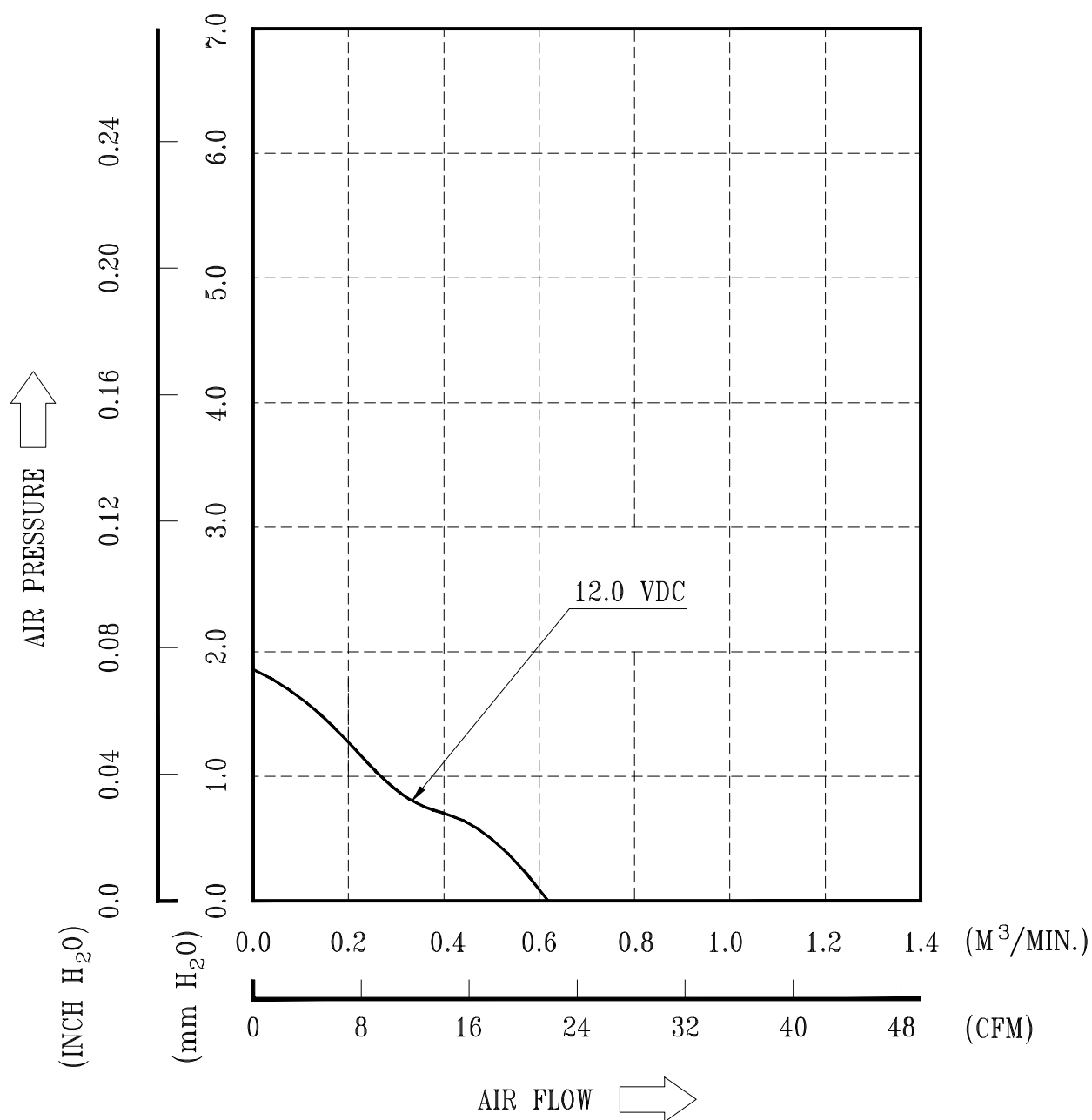
6. RE OZONE DEPLETING SUBSTANCES:

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

7. PRODUCTION LOCATION

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

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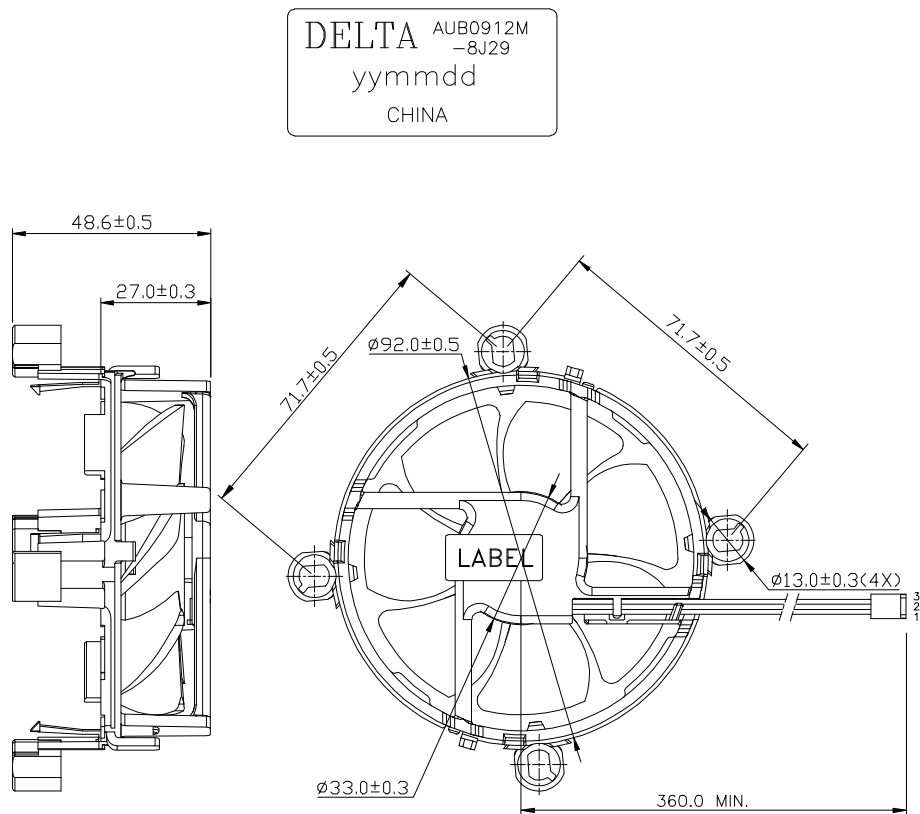
\* TEST CONDITION: INPUT VOLTAGE ----- OPERATION VOLTAGE  
TEMPERATURE ----- ROOM TEMPERATURE  
HUMIDITY ----- 65%RH

PART NO:

DELTA MODEL: AUB0912M-8J29

## 9. DIMENSION DRAWING:

LABEL:



UNIT: MM

NOTE :

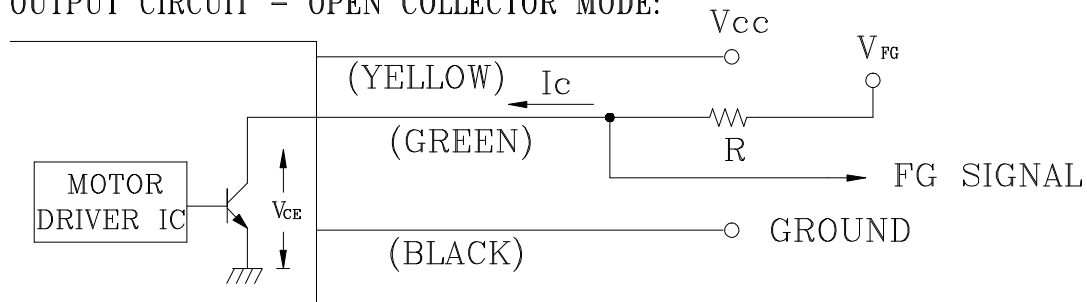
1. LEAD WIRE: UL 1430 -F- AWG #26  
PIN 1 : BLACK WIRE: NEGATIVE(-)  
PIN 2 : YELLOW WIRE: POSITIVE(+)  
PIN 3 : GREEN WIRE: TACHOMETER OUTPUT (F00)
2. HOUSING : MOLEX 2695-03 22-01-3037 OR EQUIVALENT
3. TERMINAL : MOLEX 2759T 08-50-0113 OR EQUIVALENT
4. THIS PRODUCT IS RoHS COMPLIANT

PART NO:

DELTA MODEL: AUB0912M-8J29

## 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:

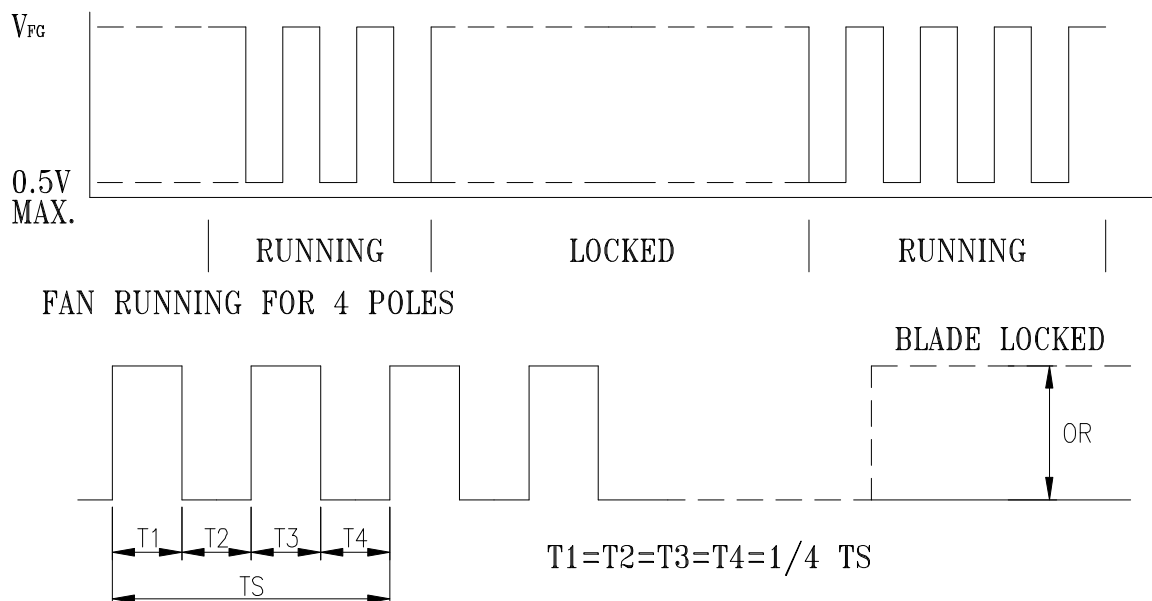
$$V_{CE(sat)} = 0.5V$$

$$V_{FG} = 5.0V \text{ TYP. (} V_{CC} \text{ MAX.)}$$

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

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

### 3. FREQUENCY GENERATOR WAVEFORM:



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

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

\*VOLTAGE LEVEL AFTER BLADE LOCKED

\*4 POLES



## **Descriptions:**

- 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 fans are 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, as there is no foolproof method to protect against such error.**
- 7. Delta fans 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 relative (ambient) temperature and humidity conditions of 25°C, 65%. The test value is only for fan performance itself.**
- 13. Be certain to connect an “over 4.7μF” capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.**