DELTA ELECTRONICS, INC.

FHS-A9025S18

Application:

Intel LGA775 Yorkfield (45nm) CPU
Q9000/Q8000 sequence (Low Profile)

Thermal & Mechanical Spec.:

Thermal performance for 95W CPU
HSK Assembly Weight: 290 g (ref.)
Clipping Force: 20 Kgf (ref.)

Component Specification:

1. Heat Sink
   Type: Thermal Shrink with Cu Core
   Material: Aluminum A6063 & Copper C1100 or Equivalent.
   Dimension: 90*90*19.05 mm
2. Thermal interface material
   Material: Dow Corning TC-5630 or Equivalent.
3. Fan
   (90x90x25 mm 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

Picture:

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.
WEGALAAN 16,
2132 JC HOOFDDORP,
THE NETHERLANDS
TEL: 31-23-566-8989
FAX: 31-23-5668910

Date: July-2009

Delta Electronics Corp.

APPROVAL SHEET

Customer Name .: _____

Model Name.: COOLER

Delta Part No.: FHS-A9025S18

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. Chen 12/29'09	Alex-Hsia 12/29'09	
01	**1. Modify the Package spec**	Skyler-Huang08/09'12	Charles. Chen 08/09'12	Alex-Hsia 08/09'12	
02	**1. Modify the Package spec**	Skyler-Huang06/10'13	Charles. Chen 06/10'13	Alex-Hsia 06/10'13	
03	**1.Change the TIM to TC-5630**	Skyler-Huang1/05'16	Charles. Chen 1/05'16	Alex-Hsia 1/05'16	

Description: SAMPLE REVISION CODE LIST		
Part No.		REV
DELTA MODEL : FHS-A9025S18	TOTAL 25 PAGE	03

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 P4 CPU COOLER
Specification	
a: Thermal Resistance	0.542 (℃/W) (REF.)
b: total weight	205 g (REF.)
c: clip force	20 kgf (REF.)

BOM

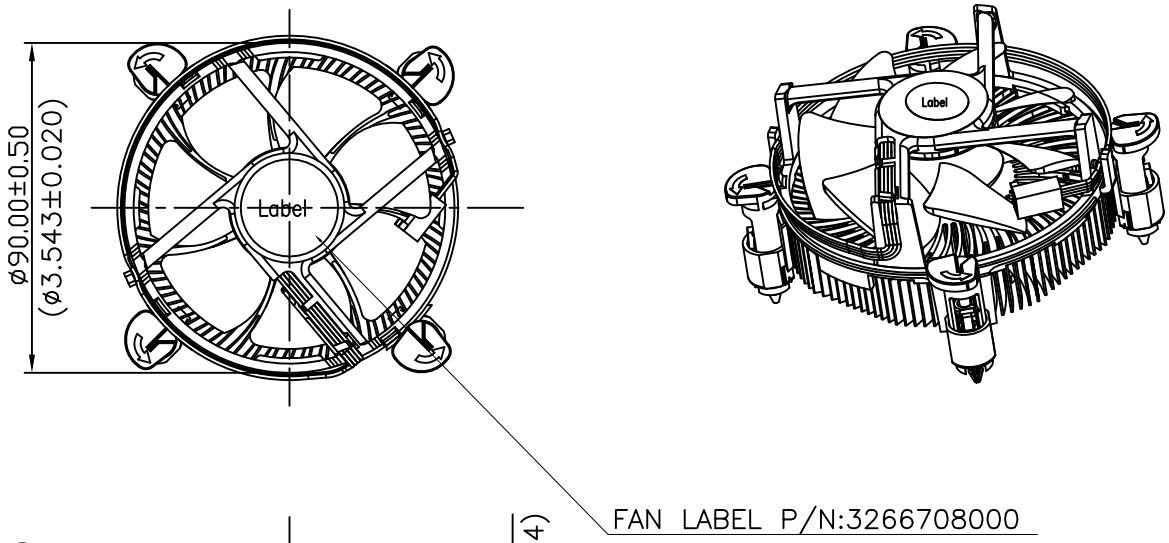
Item	Part Name	Material	Part NO.	Q'TY	Remark
1	FAN	PBT	3622916211	1	
2	HSK	AL A6063+CU C1100	3345110100	1	
3	FASTENER CAP	PC	3470415400	4	
4	FASTENER BASE	PC	3470415500	4	
5	LABEL	PE	3266708000	1	
6	TIM	DOW TC-5630	4021107300	0.1125g	Rev03

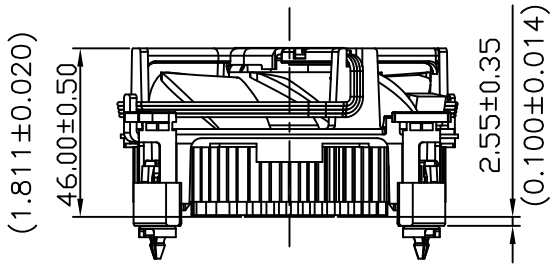
2. PRINT

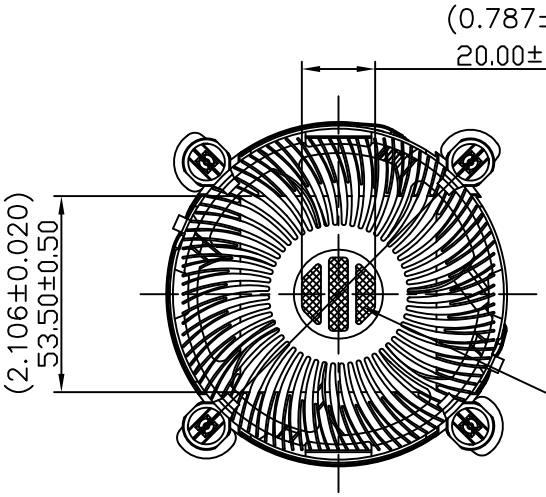
Assembly Drawing

Parts Drawing

DRAWING:







△3 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: mm (INCH)

台達電子工業股份有限公司 DELTA ELECTRONICS, INC.	DELTA MODEL: FHS-A9025S18	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: -----	

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

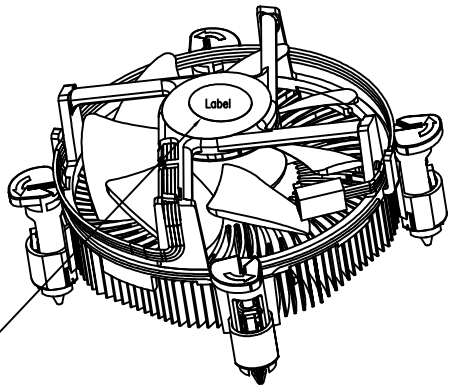
( )		( )		( )		( )	
<30	:±0.25	DECIMALS	UP~100 :±0.2	250~300 :±0.4	UP~600	:±1.5
>30~100	:±0.35	X :±0.3	100~150 :±0.25	300~350 :±0.45	600~900	:±2.4
>100~300	:±0.5	XX :±0.2	150~200 :±0.3	350~400 :±0.5	900~OVER	:±3.1
ABOVE 300	:±0.8	X.XX :±0.1	200~250 :±0.35			

THIRD ANGLE PROJECTION

SCALE ---	UNIT mm	USED ON COOLER	A4 SIZE	Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)
				Part No. FHS-A9025S18-PD
			SHEET 1 OF 1	ISSUE DATE:

REV. 03

DATECODE POSITION
TYPE: WHITE INK

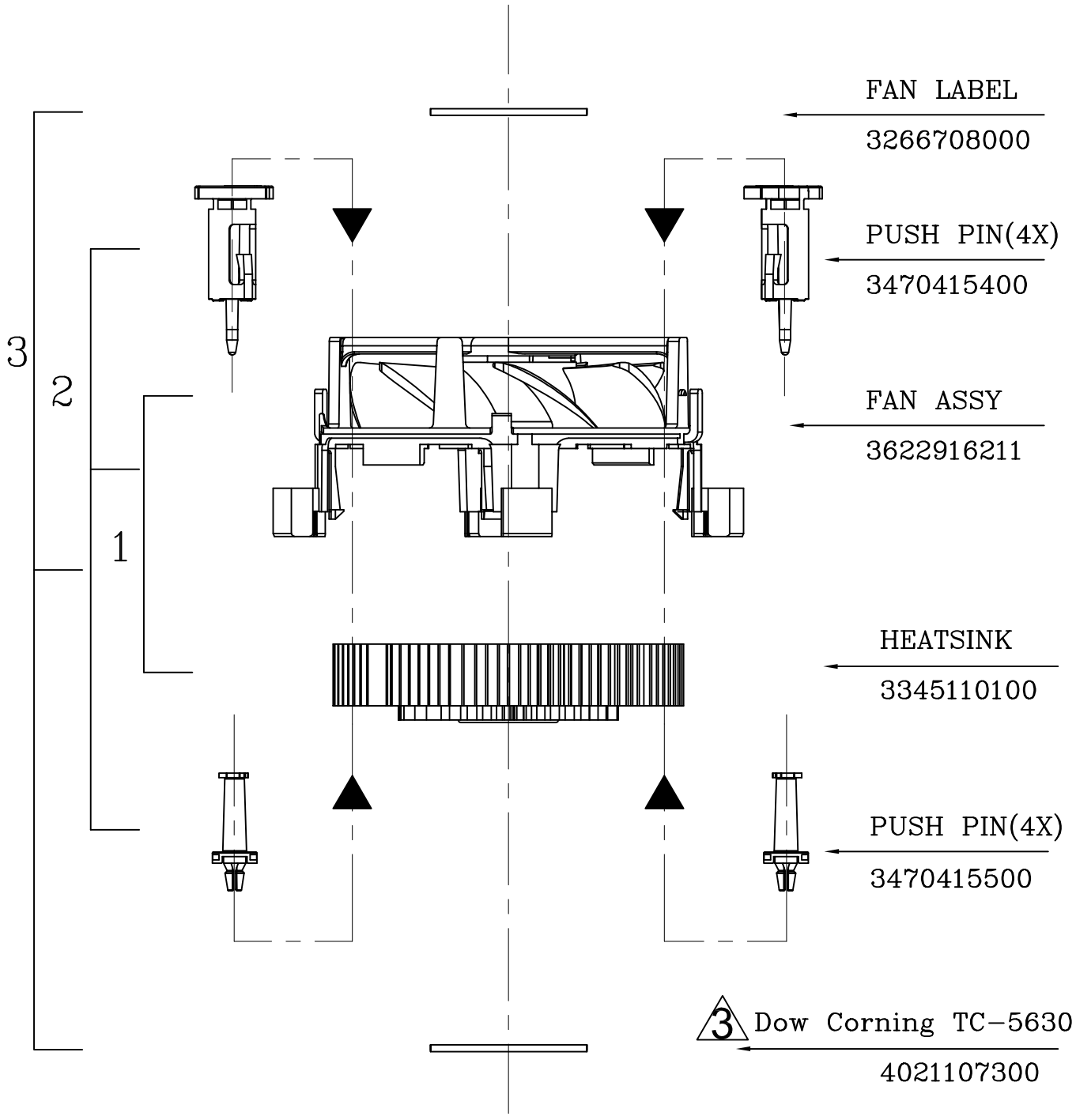


DATECODE POSITION

NOTE:

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

台達電子工業股份有限公司 DELTA ELECTRONICS, INC.	DELTA MODEL: FHS-A9025S18	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: -----	
DIMENSIONAL TOLERANCES ( ) HOLES : ±0.05 ANGLES : ±0.5°	THIRD ANGLE PROJECTION	Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)
<30 :±0.25 >30~100 :±0.35 >100~300 :±0.5 ABOVE 300:±0.6 / DECIMALS X :±0.3 XX :±0.2 XXX:±0.1 / 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	A4 SIZE	Part No. FHS-A9025S18-PD / REV. 03
SCALE --- UNIT mm USED ON COOLER	SHEET 2 OF 2	ISSUE DATE:



台達電子工業股份有限公司
DELTA ELECTRONICS, INC.

DELTA MODEL: FHS-A9025S18

Drawn: Skyler Huang 1/05'16

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	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			

THIRD ANGLE PROJECTION

Description: PRODUCTION SPEC. (ASSEMBLY ORDER)

SCALE	---	UNIT	mm	USED ON	COOLER

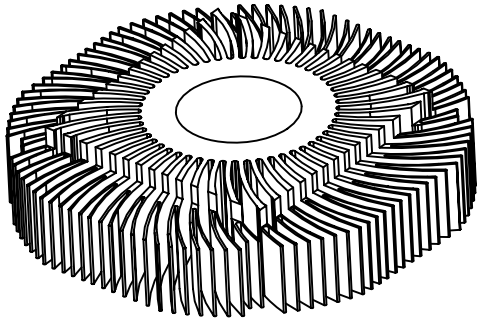
A4 SIZE

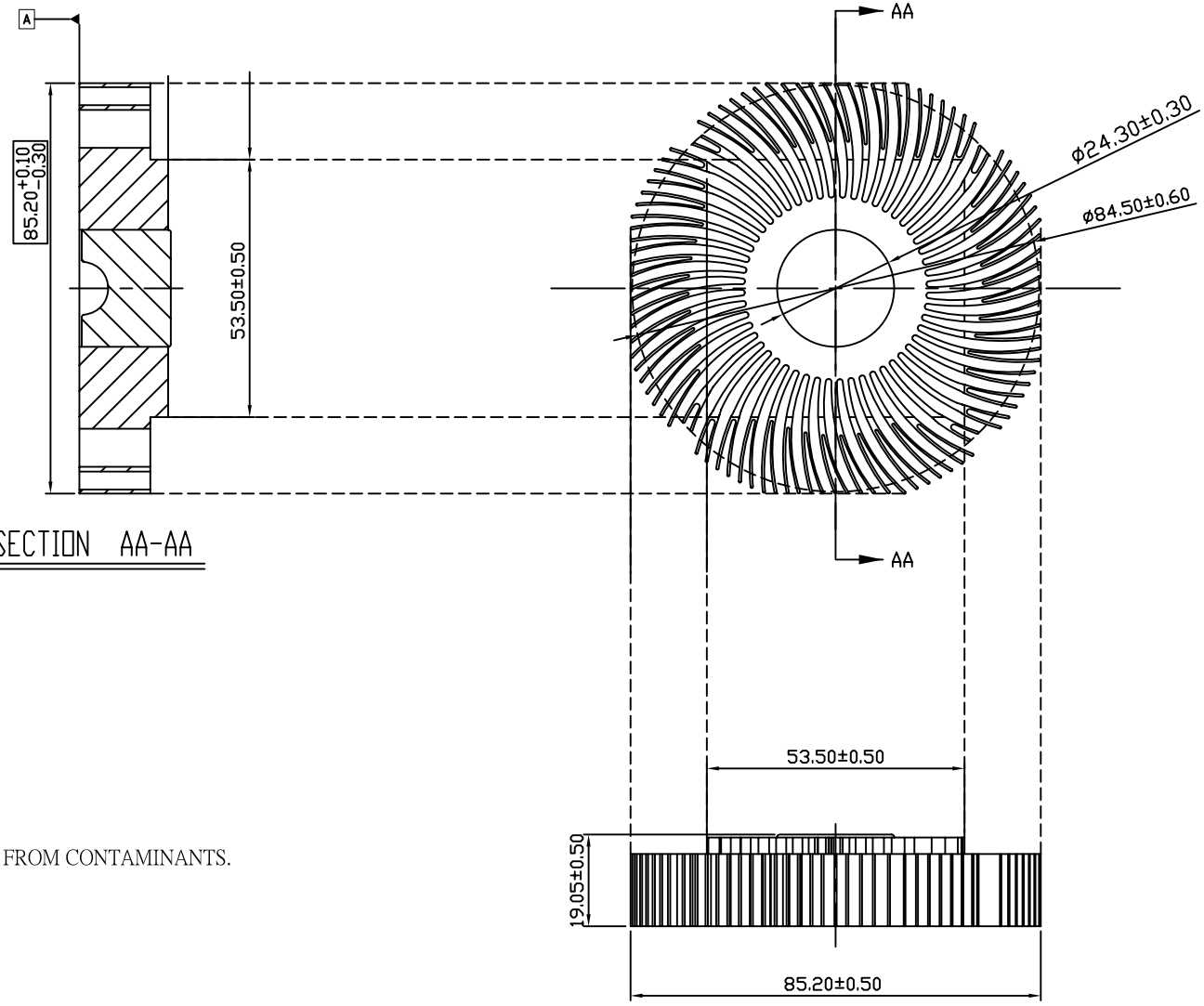
Part No. FHS-A9025S18-AS

REV. 03

SHEET 1 OF 1

ISSUE DATE:





SECTION AA-AA

NOTES:

*1. MATERIAL：C 1100 ALUMINUM A6063 T5

*2. REMOVE ALL BURRS AND SHARP EDGES. SURFACE TO BE FREE FROM CONTAMINANTS.

*3. DEGREASED PART SHOULD BE FREE OF LOOSE PARTICLE.

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	±0.3	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	1/1	UNIT	mm	USED ON	COOLER

A3 SIZE

Drawn: Skyler Huang

DESCRIPTION: HEATSINK

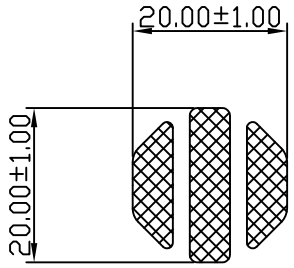
PART NO.: 3345110100

REV.: --

SHEET 2 OF 2

DF-MEA3H-4R00

3



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-cm²/W @40psi
6. GROSS WEIGHT: 112.5±30 mg
7. VENDOR : DOW CORNING
8. MUST MEET DELTA'S SPEC : 10000-0162

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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
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>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	1/1	UNIT	mm	USED ON	COOLER

A4 SIZE

Drawn: Skyler Huang

DESCRIPTION: THERMAL INTERFACE

PART NO.: 4021107300

REV. 03

SHEET 1 OF 1

DF-MEA3H-4R00

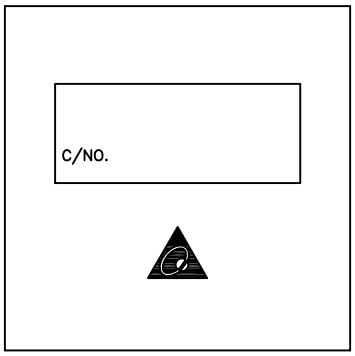
3. PACKING PLAN

Packing Specification

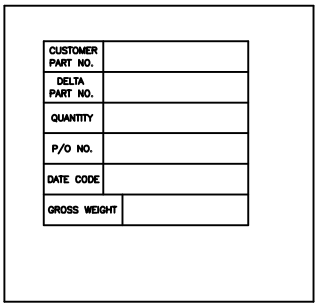
CARTON ILLUSTRATE	SIZE	524(L)*225(w)*475(H)(mm) 1	PACKING QUANTITY	6LAYERS/CARTON 1
	MATERIAL	3 LAYERS"AB" FLUTE	CARTON WEIGHT	0.62 kg (REF.)

CARTON OUTSIDE DEMONDTRATE

FRONT

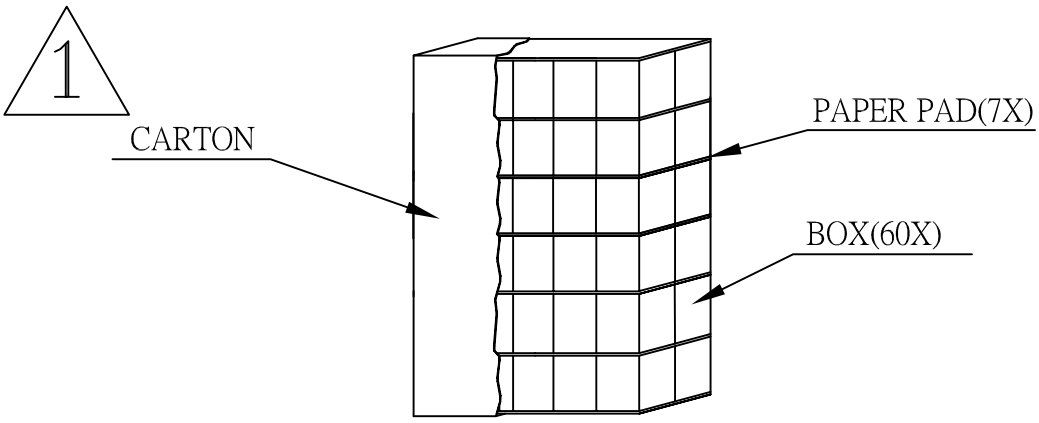


BACK



(ONE LABEL PER CARTON)

PET TRAY PACKING ILLUSTRATE	SIZE	94(L)*94(w)*30(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.

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	XXX :±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-A9025S18	Drawn: Skyler Huang
CUSTOMER NAME: -----	
CUSTOMER P/N: -----	

THIRD ANGLE PROJECTION

Description: PRODUCTION SPEC. (PACKING ASSMEBLY)

A4 SIZE

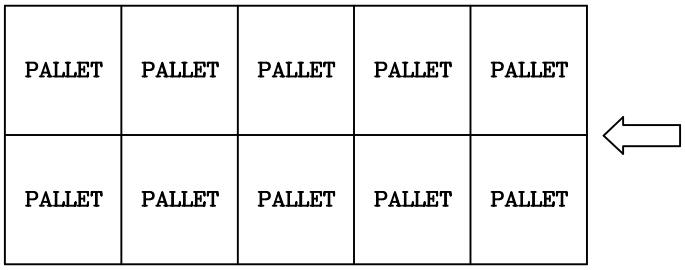
Part No. FHS-A9025S18-PA REV. --

SHEET 1 OF 2 ISSUE DATE:

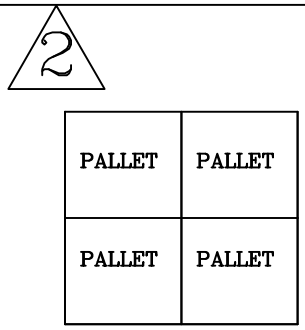
PART NO.	FHS-A9025S18			
BASIC DATA	QUANTITY/CARTON	60PCS (6 LAYERS/CARTON, 10PCS/LAYER) ①		
	PRODUCTION NET WEIGHT	15kg (REF.) ①		
	PRODUCTION GROSS WEIGHT	17.9kg (REF.) ①		
20(ft)CONTAINER ILLUSTRATE	SIZE	5.889(L)*2.352(w)*2.386(H)m	PACKING QUANTITY	20PALLETS/CONTAINER
	CONTAINER	STEEL		

CONTAINER FORM

CONTAINER LOADING MATHOD



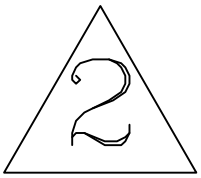
TOP VIEW



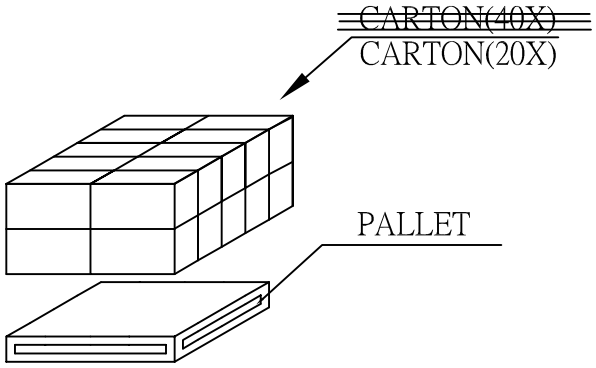
FRONT VIEW

PALLET LOADING ILLUSTRATE	SIZE	117(L)*107(w)*13(H)cm	PACKING QUANTITY	20 CARTONS/PALLET
	PALLET	WOOD		

PALLET ILLUSTRATE



PALLET LOADING MATHOD



台達電子工業股份有限公司
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-A9025S18	Drawn: Skyler Huang	
CUSTOMER NAME: -----		
CUSTOMER P/N: -----		
THIRD ANGLE PROJECTION	Description: PRODUCTION SPEC. (PACKING ASSMEBLY)	
A4 SIZE	Part No. FHS-A9025S18-PA	REV. --
	SHEET 2 OF 2	ISSUE DATE:

4. FAN

Fan Specification

SPECIFICATION FOR APPROVAL

Customer T M P B U

Description D C F A N

Part No. _____ R E V . _____

Delta Model No. AUC0912D-8H79 REV. 01

Sample Issue No. _____

Sample Issue Date OCT.06.2008

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 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.: AUC0912D-8H79

Sample Rev: 01 Issue NO:

Sample Issue Date: OCT.06.2008 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	
SENSOR TEMPERATURE	30°C	38°C
RATED VOLTAGE	12.0 VDC	
OPERATION VOLTAGE	10.8 - 13.2 VDC	
START UP CURRENT	MAX. 0.60A	MAX. 0.73A
INPUT CURRENT	0.07 (MAX. 0.14) A	0.14 (MAX. 0.46) A
INPUT POWER	0.84 (MAX. 1.68) W	1.68 (MAX. 5.52) W
SPEED (FAN ONLY)	2000±10% R.P.M.	3200±10% R.P.M.
SPEED (FAN ON SINK)	2000±10% R.P.M.	3150±10% R.P.M.
MAX. AIR FLOW (FAN ONLY) (AT ZERO STATIC PRESSURE)	0.537 (MIN. 0.483) M^3/MIN. 18.96 (MIN. 17.06) CFM	0.914 (MIN. 0.823) M^3/MIN. 32.29 (MIN. 29.06) CFM
MAX. AIR PRESSURE (FAN ONLY) (AT ZERO AIRFLOW)	1.53 (MIN. 1.24) mmH_2O 0.060 (MIN. 0.049) $inchH_2O$	3.61 (MIN. 2.92) mmH_2O 0.142 (MIN. 0.115) $inchH_2O$
ACOUSTICAL NOISE(ON SINK AVG.)	26.0 (MAX. 30.0) dB-A	36.0 (MAX. 40.0) dB-A
INSULATION TYPE	UL: CLASS A	

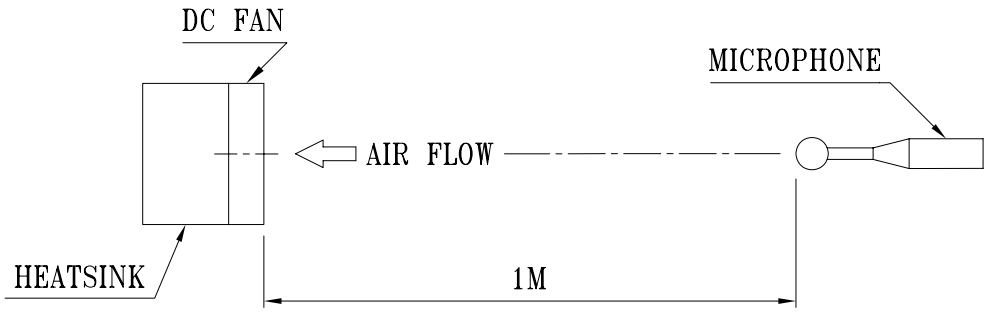
(continued)

PART NO:

DELTA MODEL: AUC0912D-8H79

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 (FOO) 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:

DELTA MODEL: AUC0912D-8H79

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.

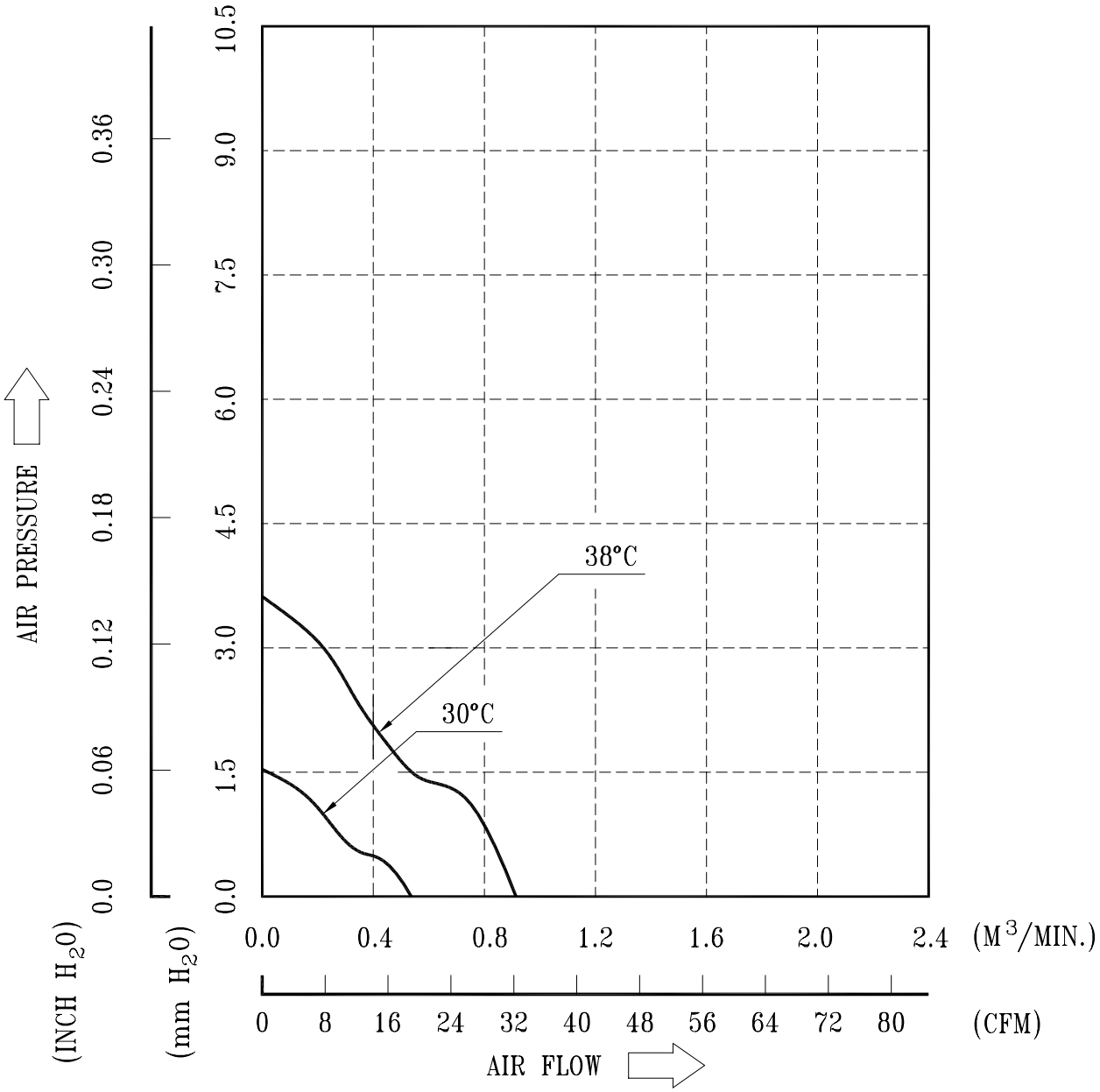
7. PRODUCTION LOCATION

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

PART NO:

DELTA MODEL: AUC0912D-8H79

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



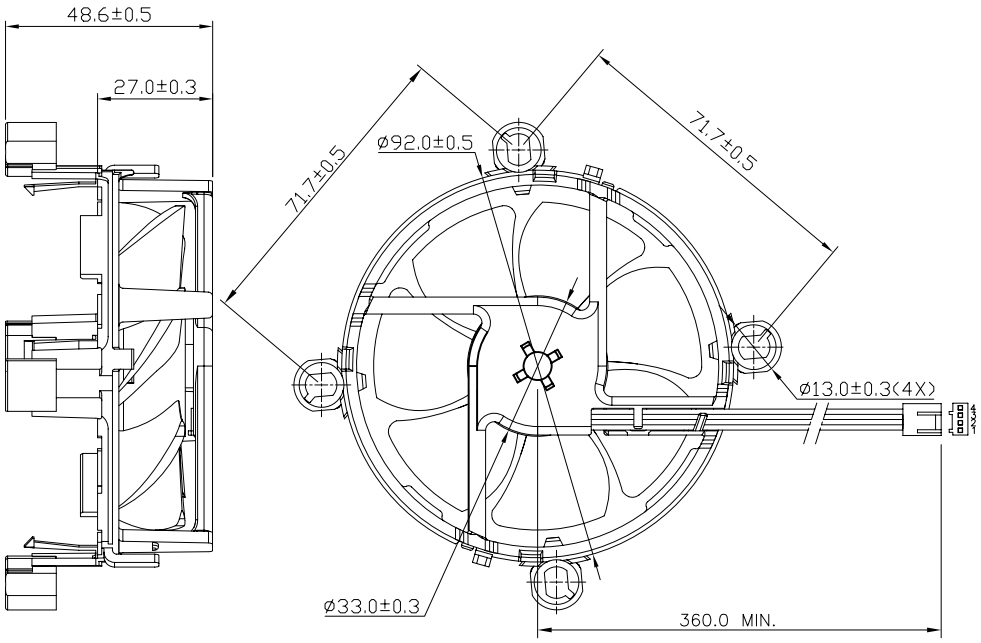
* TEST CONDITION: INPUT VOLTAGE ----- OPERATION VOLTAGE
TEMPERATURE ------ ROOM TEMPERATURE
HUMIDITY ---------- 65%RH

PART NO:

DELTA MODEL: AUC0912D-8H79

9. DIMENSION DRAWING:

LABEL:



UNIT: MM

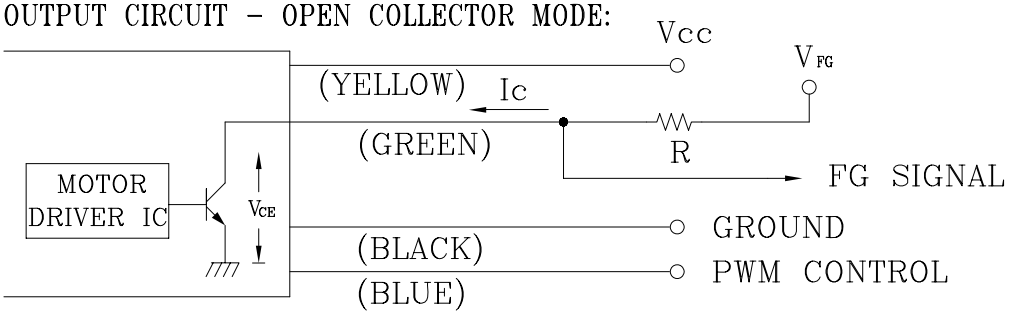
NOTE : 1. LEAD WIRE: UL 1430 -F- AWG #26
PIN 1 : BLACK WIRE: NEGATIVE(-)
PIN 2 : YELLOW WIRE: POSITIVE(+)
PIN 3 : GREEN WIRE: TACHOMETER OUTPUT (F00)
PIN 4 : BLUE WIRE: SPEED CONTROL (PWM)
2. HOUSING : MOLEX 47054-1000 OR EQUIVALENT
3. TERMINAL : MOLEX 2759T 08-50-0113 OR EQUIVALENT
4. THIS PRODUCT IS RoHS COMPLIANT

PART NO:

DELTA MODEL: AUC0912D-8H79

10. FREQUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



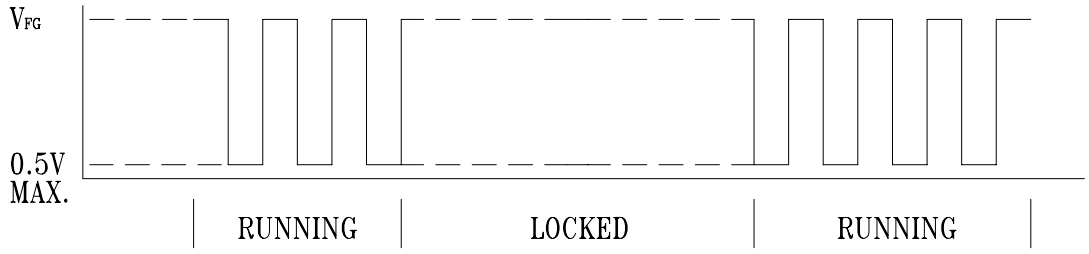
CAUTION: THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM "+" LEAD WIRE & "−" LEAD WIRE.

2. SPECIFICATION:

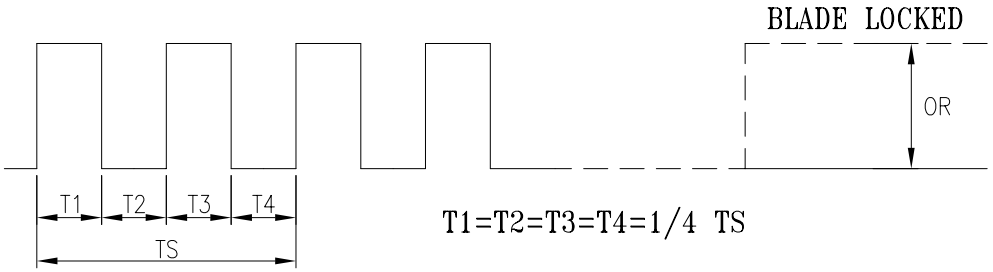
V_{CE}(sat)=0.5V MAX V_{FG} =5.0V TYP. (Vcc MAX.)

I_C =10mA MAX. $R \geq V_{FG}/I_C$

3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



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

N=R.P.M

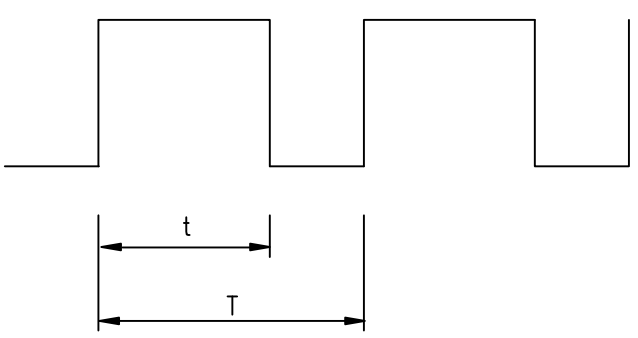
TS=60/N(SEC)

*VOLTAGE LEVEL AFTER BLADE LOCKED

*4 POLES

11. PWM CONTROL FUNCTION:(FAN ON SINK)

11-1 SIGNAL DESCRIPTION:



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

$f = 1/T = 25K \pm 3KHZ$

- 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 38 DEGREE C,THE FAN SPEED IS 3150RPM.
BETWEEN 30~38 DEGREE C,THE FAN SPEED IS 2000RPM~3150RPM.

11-2-2 PWM CONTROL

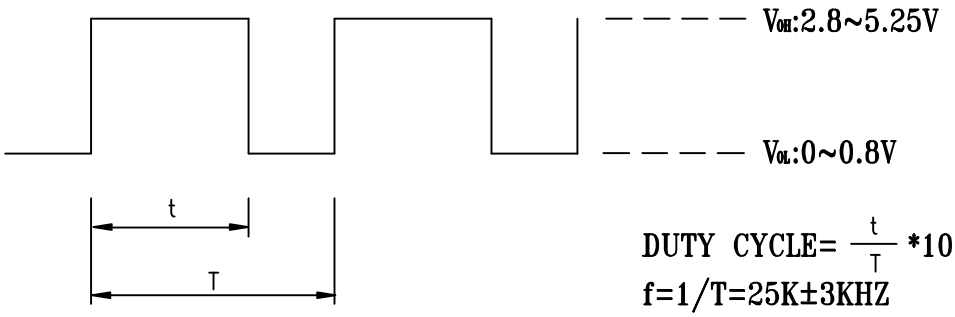
BELOW 30 DEGREE C
BETWEEN 0%~20% TO 100% DUTY CYCLE,THE FAN SPEED IS 1000RPM TO 2000RPM.
ABOVE 38 DEGREE C
BETWEEN 0%~20% TO 100% DUTY CYCLE,THE FAN SPEED IS 1000RPM TO 3150RPM.

TEMPERATURE (°C)	DUTY CYCLE (%)	SPEED (R.P.M.)
30	0~20	1000±200
30	100	2000±10%
38	0~20	1000±200
38	100	3150±10%

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

12. PWM CONTROL FUNCTION:(FAN ONLY)

12-1 SIGNAL DESCRIPTION:



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

f=1/T=25K±3KHZ

- 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 2000RPM.
ABOVE 38 DEGREE C,THE FAN SPEED IS 3200RPM.
BETWEEN 30~38 DEGREE C,THE FAN SPEED IS 2000RPM~3200RPM.

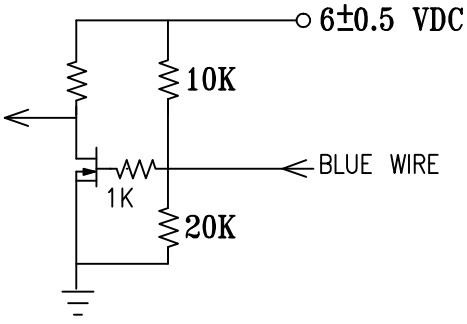
12-2-2 PWM CONTROL

BELOW 30 DEGREE C
BETWEEN 0%~20% TO 100% DUTY CYCLE,THE FAN SPEED IS 1050RPM TO 2000RPM.
ABOVE 38 DEGREE C
BETWEEN 0%~20% TO 100% DUTY CYCLE,THE FAN SPEED IS 1050RPM TO 3200RPM.

TEMPERATURE (°C)	DUTY CYCLE (%)	SPEED (R.P.M.)
30	0~20	1050±200
30	100	2000±10%
38	0~20	1050±200
38	100	3200±10%

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

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:



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.