



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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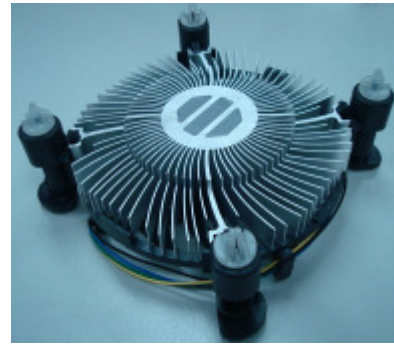
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Application:

Intel Nehalem LGA1156 (45nm) & Intel Sandy Bridge LGA1155 (32nm)

Picture:



Thermal & Mechanical Spec

Thermal performance for 45 W CPU
 HSK Assembly Weight: 120 g (ref.)
 Clipping Force: 16 Kgf (ref.)

Component Specification:

1. Heat Sink
 - Type: Thermal Shrink
 - Material: Aluminum A6063
 - Dimension: 90*90*30 mm
2. Thermal interface material
 - Material: Dow Corning TC-5630 or Equivalent.
3. Fan

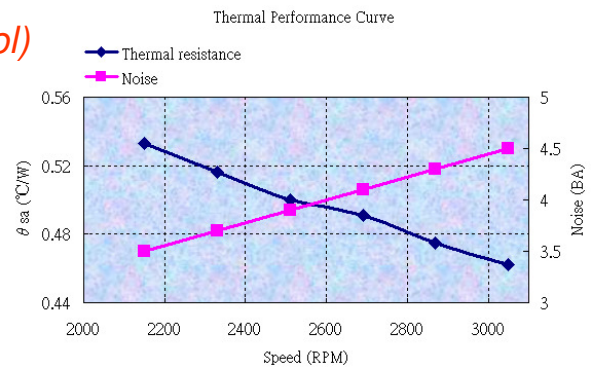
(90x90x17 mm with Thermistor & PWM Control)

Rated Voltage: 12 V

Life Time:
 Superflo bearing 50000 hrs

Connector:

- a. Lead wire: UL 10368 -F- AWG#28
 - 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

Model Name : FHS-A9015S00

Customer Part No : _____

Spec Issue Date : 2015/12/14

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
<i>Charles. Chen</i>	<i>Charles. Chen</i>	<i>Skyler.Huang</i>



Delta Electronics Corp.

REV.	Description	Drawn	Checked	Approved	Issue Date
00	ISSUE SPEC	REEK.LI _{2011/11/25}	Charles.Chen _{2011/11/25}	Alex-Hsia _{2011/11/25}	2011/11/25
01	ADD ROHS	Skyler	Charles.Chen	Alex-Hsia	2013/03/08
02	1. Change the grease from TC-1996 to TC-5630 2. Update RoHS	Skyler	Charles.Chen	Charles.Chen	2015/12/14
Description: <p style="text-align: center;">SAMPLE REVISION CODE LIST</p>					
Part No.					REV
DELTA MODEL : FHS-A9015S00			TOTAL <u>78</u> PAGE		02



Delta Electronics Corp.

CONTENTS

Item	Element Description	Page	Note
1	Specification	5	
2	Print	6	
3	Packing Plan	14	
4	Fan	17	
5	RoHS Certification	28	

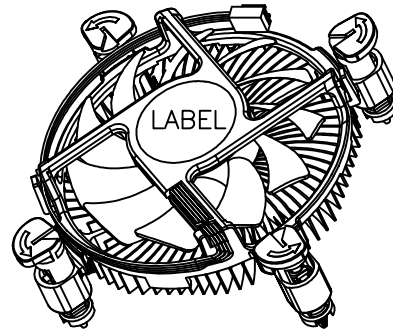
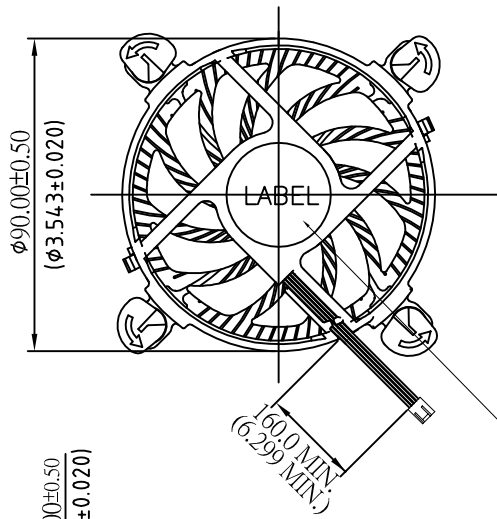


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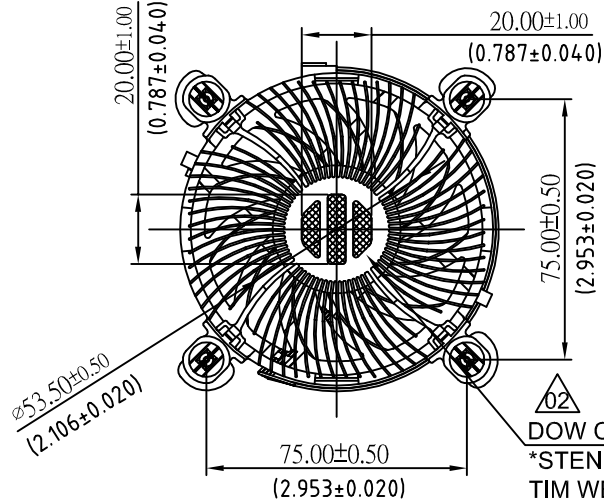
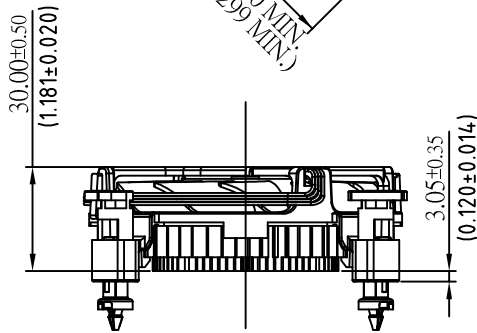
2. PRINT

Assembly Drawing

DRAWING:




FAN LABEL P/N:3267128700

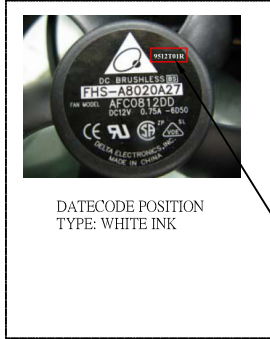


DOW CORNING TC-5630 P/N:4021107300

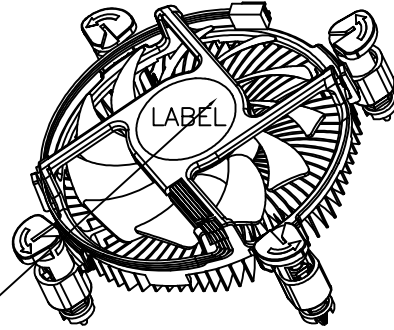
*STENCIL THICKNESS=0.20(TYP.) 0.22(MAX.)

TIM WEIGHT ON HSK MUST BE 112MG+/-25MG UNIT: $\frac{\text{mm}}{\text{(INCH)}}$

 台達電子工業股份有限公司 DELTA ELECTRONICS, INC.	DELTA MODEL: FHS-A9015S00	Drawn: Skyler 12/14'15																																							
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CUSTOMER NAME: STD		CUSTOMER P/N: ---																																							
DIMENSIONAL TOLERANCES () () () HOLES: ±0.05 ANGLES: ±0.5		Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)																																							
<table border="1"> <tr> <td><30</td> <td>±0.25</td> <td>DECIMALS</td> <td>UP-100</td> <td>±0.2</td> <td>250-300</td> <td>±0.4</td> <td>UP-600</td> <td>±1.5</td> </tr> <tr> <td>>30-100</td> <td>±0.35</td> <td>X</td> <td>±0.3</td> <td>100-150</td> <td>±0.25</td> <td>300-350</td> <td>±0.45</td> <td>600-900</td> <td>±2.4</td> </tr> <tr> <td>>100-300</td> <td>±0.5</td> <td>XX</td> <td>±0.2</td> <td>150-200</td> <td>±0.3</td> <td>350-400</td> <td>±0.5</td> <td>900-OVER</td> <td>±3.1</td> </tr> <tr> <td>ABOVE 300</td> <td>±0.6</td> <td>XXX</td> <td>±0.1</td> <td>200-250</td> <td>±0.35</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		<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					Part No. FHS-A9015S00-PD
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SCALE: --- UNIT: mm USED ON: COOLER	SIZE: A4	SHEET 1 OF 2 ISSUE DATE:																																							
		REV. 02																																							



DATECODE POSITION
TYPE: WHITE INK




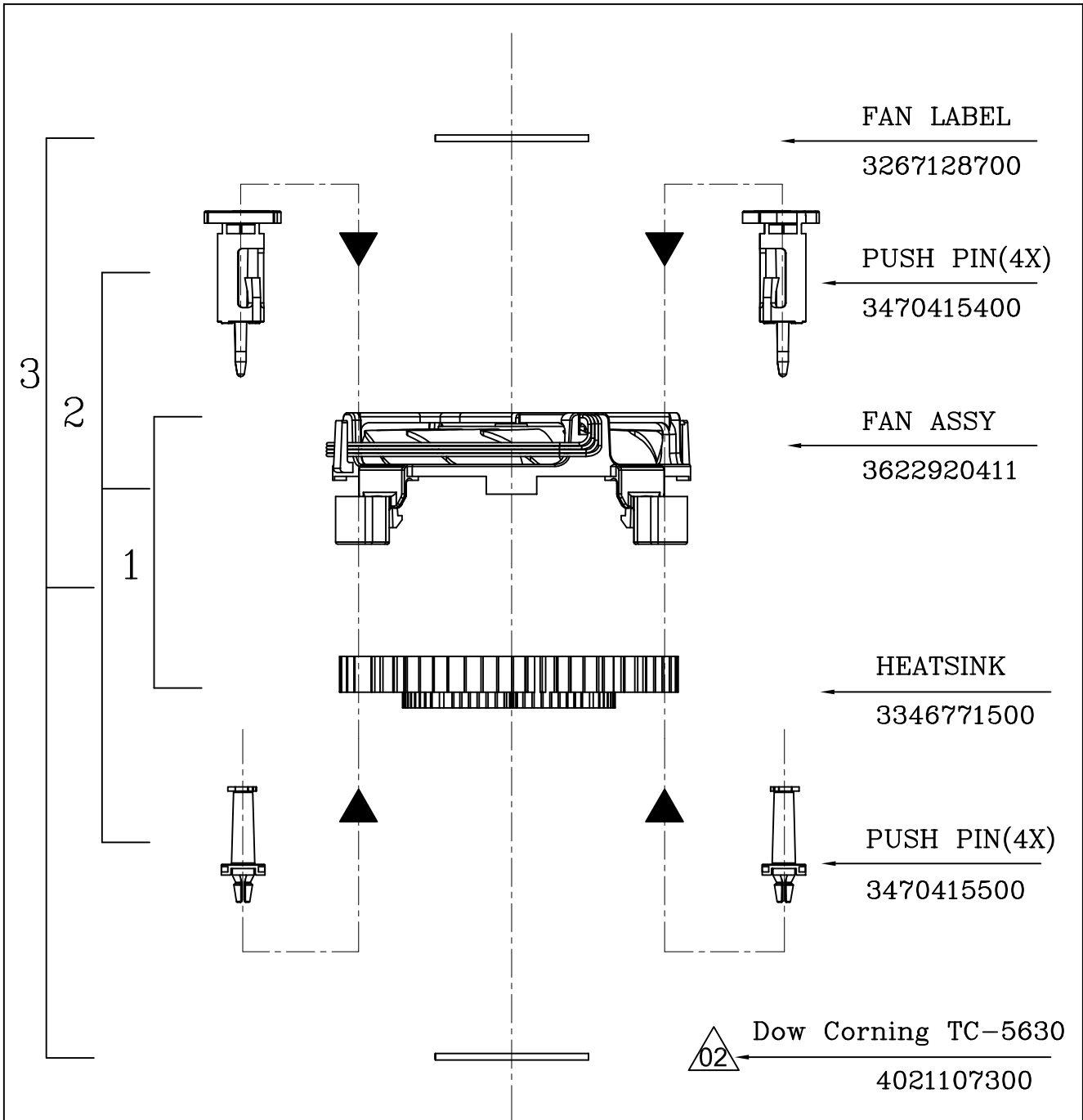
DATECODE POSITION



NOTE:

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

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

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SCALE: --- UNIT: mm USED ON: COOLER	Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)	A4 Part No. FHS-A9015S00-PD																																							
SHEET 2 OF 2	ISSUE DATE:	REV. 02																																							



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DIMENSIONAL TOLERANCES () () () HOLES : ±0.05 ANGLES : ±0.5 <30 ±0.25 DECIMALS UP-100 ±0.2 250-300 ±0.4 () ±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 X.XX ±0.1 200-250 ±0.35	 Description: PRODUCTION SPEC. (ASSEMBLY ORDER)	Part No. FHS-A9015S00-AS
SCALE --- UNIT mm USED ON COOLER	A4 SIZE	SHEET 1 OF 1 ISSUE DATE:
		REV. 02



Delta Electronics Corp.

Parts Drawing

1

2

3

4

A

A

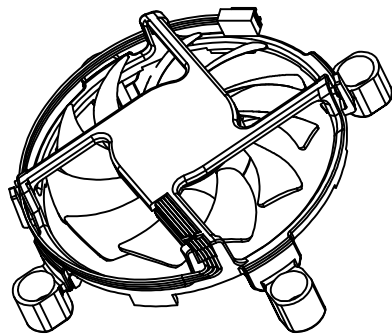
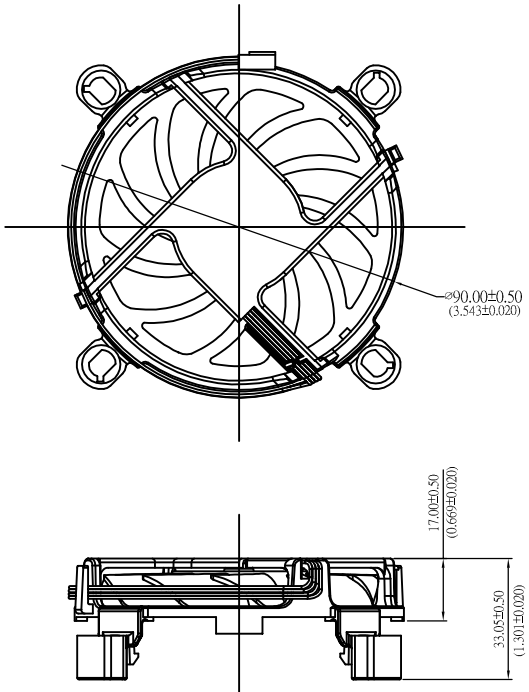
B



B

C

C

FAN SPECIFICATION	
FAN TYPE	LINEARLY VARIABLE, DC BRUSHLESS MOTOR
OPERATING VOLTAGE	13.2V MAX, 12V RATED, 10.8V MIN
CURRENT	AVERAGE : 0.15A
	MAXIMUM : 0.46A
	STARTING : 0.73A
SPEED AT STEADY STATE	3100 RPM ± 10%
OPERATING TEMPERATURE	0°C TO +70°C
OPERATING HUMIDITY	85% RELATIVE HUMIDITY @ 55°C
PROTECTION	LOCKED ROTOR, POLARITY
BEARING TYPE	SUPERFLO BEARING



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DIMENSIONAL TOLERANCES () : ±0.25 () : ±0.5 () : ±0.5 <math>< 30</math> : ±0.25 DECIMALS : UP-100 : ±0.2 250-300 : ±0.4 UP-300 : ±1.5 >30-100 : ±0.25 X : ±0.5 100-150 : ±0.25 300-350 : ±0.45 500-900 : ±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					PART NO.: 3622920411	
SCALE 1/1 UNIT mm USED ON COOLER					REV. : --	
SIZE A4					SHEET 1 OF 1	

1

2

3

4



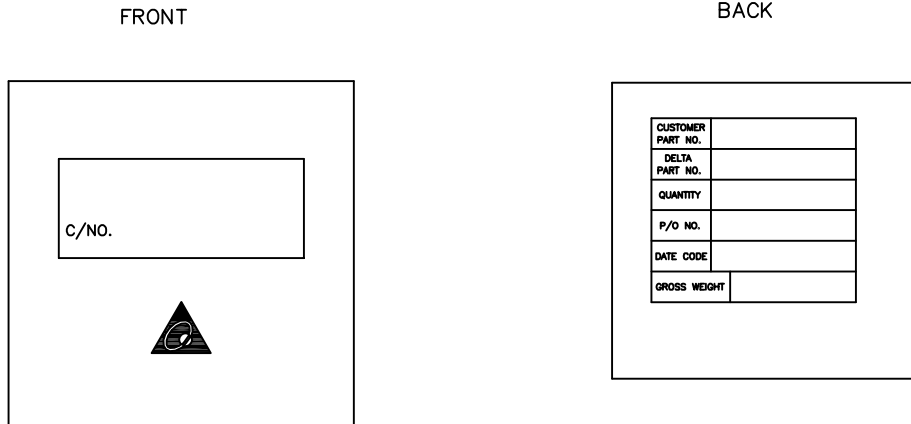
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3. PACKING PLAN

Packing Specification

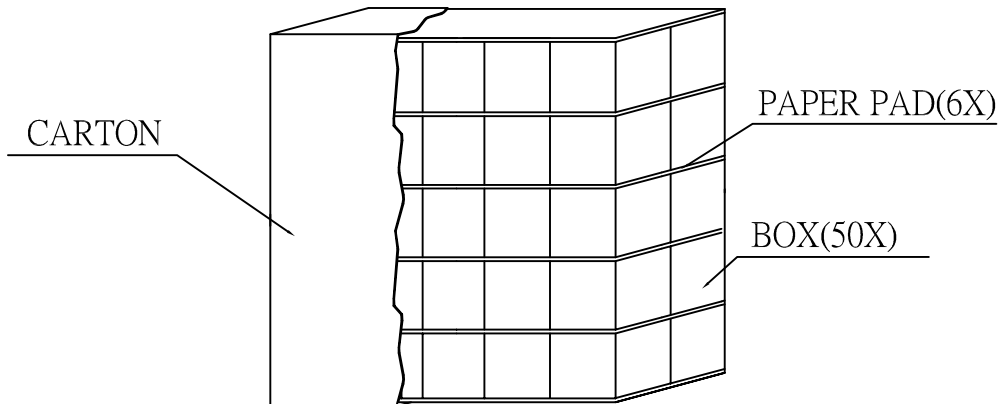
CARTON ILLUSTRATE	SIZE	530(L)*230(w)*315(H)(mm)	PACKING QUANTITY	5LAYERS/CARTON
	MATERIAL	3 LAYERS"AB" FLUTE	CARTON WEIGHT	0.62 kg (REF.)



CARTON OUTSIDE ILLUSTRATE



(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.)		

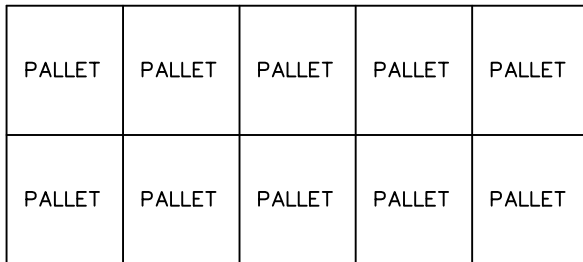


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	FHS-A9015S00	REEK.LI 11/25/11
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	CUSTOMER P/N:	---
DIMENSIONAL TOLERANCES () () () HOLES : ±0.05 ANGLES : ±0.5° () () () <30 :±0.25 DECIMALS UP~100 :±0.2 250~300 :±0.4 UP~600 :±1.5 >30~100 :±0.35 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	 Description: PRODUCTION SPEC. (PACKING ASSMBLY)	REV.
	A4 SIZE	
SCALE --- UNIT mm USED ON COOLER		

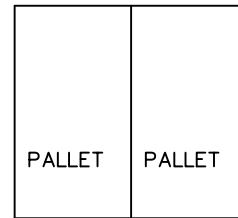
PART NO.	FHS-A9015S00			
BASIC DATA	QUANTITY /CARTON	50PCS (5 LAYERS/CARTON, 10PCS/LAYER)		
	PRODUCTION NET WEIGHT	7.8kg (REF.)		
	PRODUCTION GROSS WEIGHT	9.8kg (REF.)		
20(ft)CONTAINER ILLUSTRATE	SIZE	5.889(L)*2.352(w)*2.386(H)m		PACKING QUANTITY
	CONTAINER	STEEL		10PALLETS/CONTAINER

CONTAINER FORM

CONTAINER LOADING MATHOD



TOP VIEW

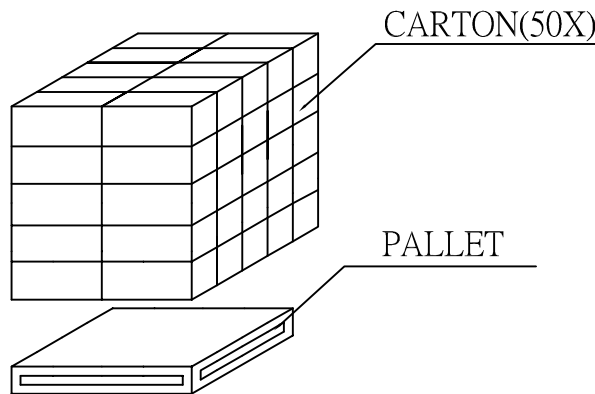


FRONT VIEW

PALLET LOADING ILLUSTRATE	SIZE	117(L)*107(w)*13(H)cm	PACKING QUANTITY	50 CARTONS/PALLET
	PALLET	WOOD		

PALLET ILLUSTRATE

PALLET LOADING MATHOD



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	CUSTOMER P/N:	---			
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SCALE --- UNIT mm USED ON COOLER	A4 SIZE	SHEET 2 OF 2	ISSUE DATE:		---



Delta Electronics Corp.

4. FAN



SPECIFICATION FOR APPROVAL

Customer TMPBU

Description DC FAN

Part No. _____ REV. _____

Delta Model No. AUC0912D-AF1F REV. 00

Sample Issue No. _____

Sample Issue Date SEP.15.2010

PLEASE SEND ONE COPY OF THIS SPECIFICATION
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: TMPBU

 Description: DC FAN

 Customer P/N: REV:

 Delta Model NO.: AUC0912D-AF1F Delta Safety Model NO.: N/A

 Sample Rev: 00 Issue NO:

 Sample Issue Date: SEP.15.2010 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
RATED VOLTAGE	12.0 VDC
OPERATION VOLTAGE	10.8 - 13.2 VDC
INPUT CURRENT	0.15 (MAX. 0.22) A (SAFETY CURRENT 0.46 A)
INPUT POWER	1.80 (MAX. 2.64) W
SPEED (FAN ONLY)	3100±10% R.P.M.
SPEED (FAN ON SINK)	3100±10% R.P.M.
MAX. AIR FLOW (FAN ONLY) (AT ZERO STATIC PRESSURE)	0.643 (MIN. 0.578) M ³ /MIN. 22.68 (MIN. 20.41) CFM
MAX. AIR PRESSURE (FAN ONLY) (AT ZERO AIRFLOW)	1.66 (MIN. 1.34) mmH ₂ O 0.065 (MIN. 0.053) inchH ₂ O
ACOUSTICAL NOISE(ON SINK AVG.)	32.6 (MAX. 36.6) dB-A
INSULATION TYPE	UL: CLASS A

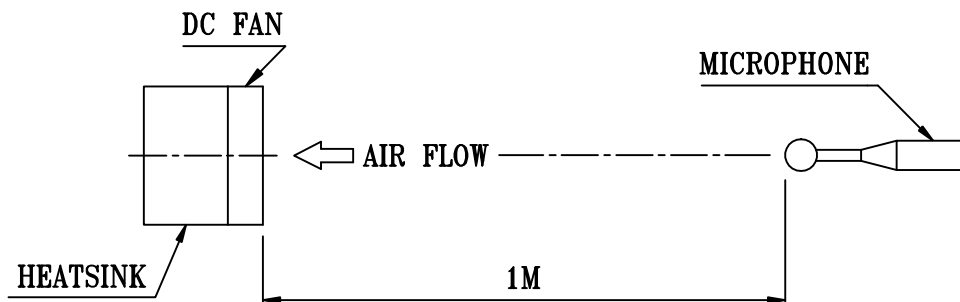
(continued)

PART NO:

DELTA MODEL: AUC0912D-AF1F

INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 50/60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE	80,000 HOURS CONTINUOUS OPERATION AT 45 °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 10368 -F- AWG #28 BLACK WIRE NEGATIVE(-) YELLOW WIRE POSITIVE(+) GREEN WIRE FREQUENCY(-F00) 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-AF1F

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 ----- SUPERFLO BEARING

3-5. WEIGHT ----- 55 GRAMS

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE ----- 0 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

5-2. POLARITY PROTECTION

HOURS OF LOCKED ROTOR CONDITION AT THE RATED VOLTAGE.

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.

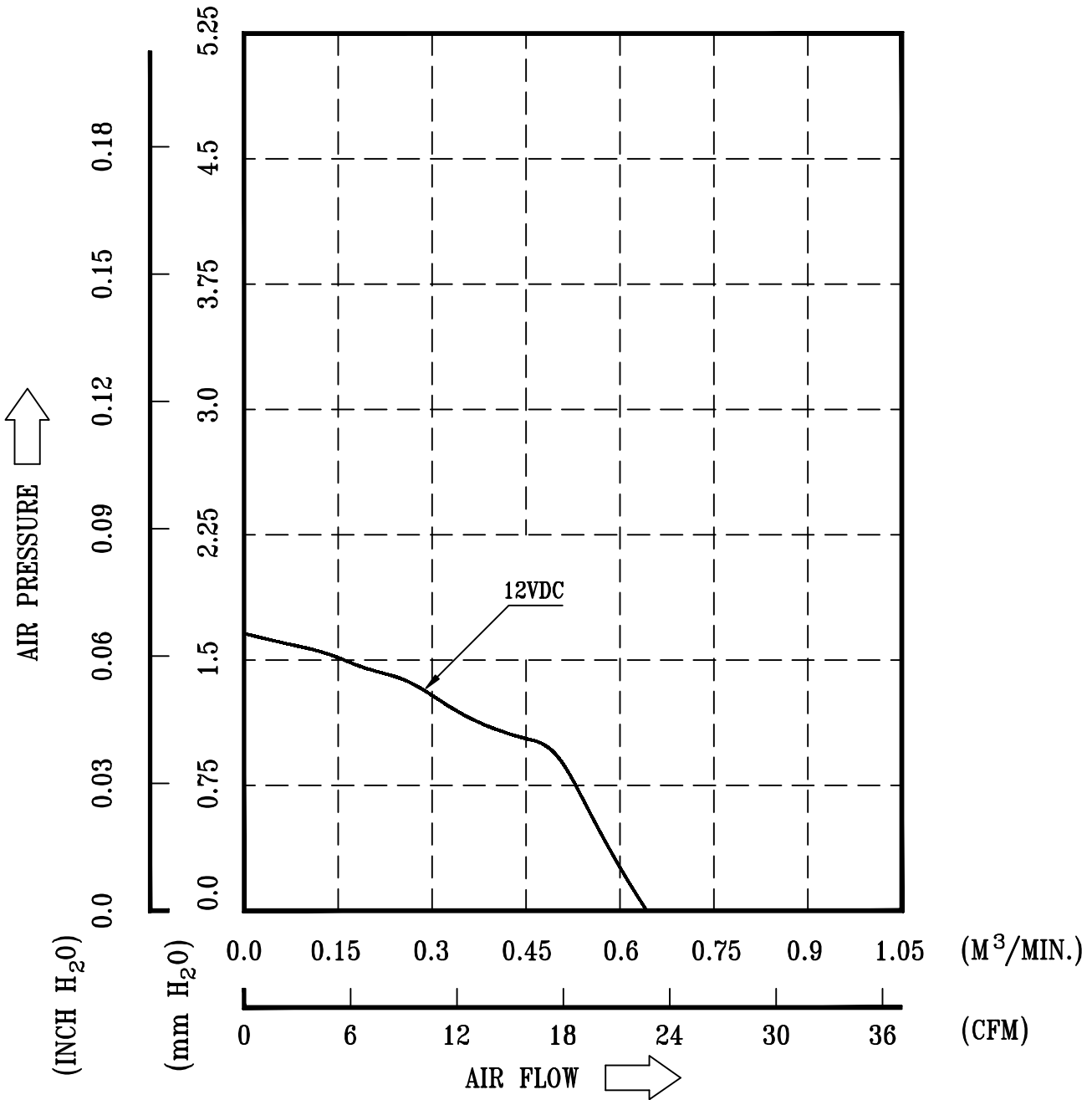
7. PRODUCTION LOCATION

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

PART NO:

DELTA MODEL: AUC0912D-AF1F

8. P & Q CURVE:



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

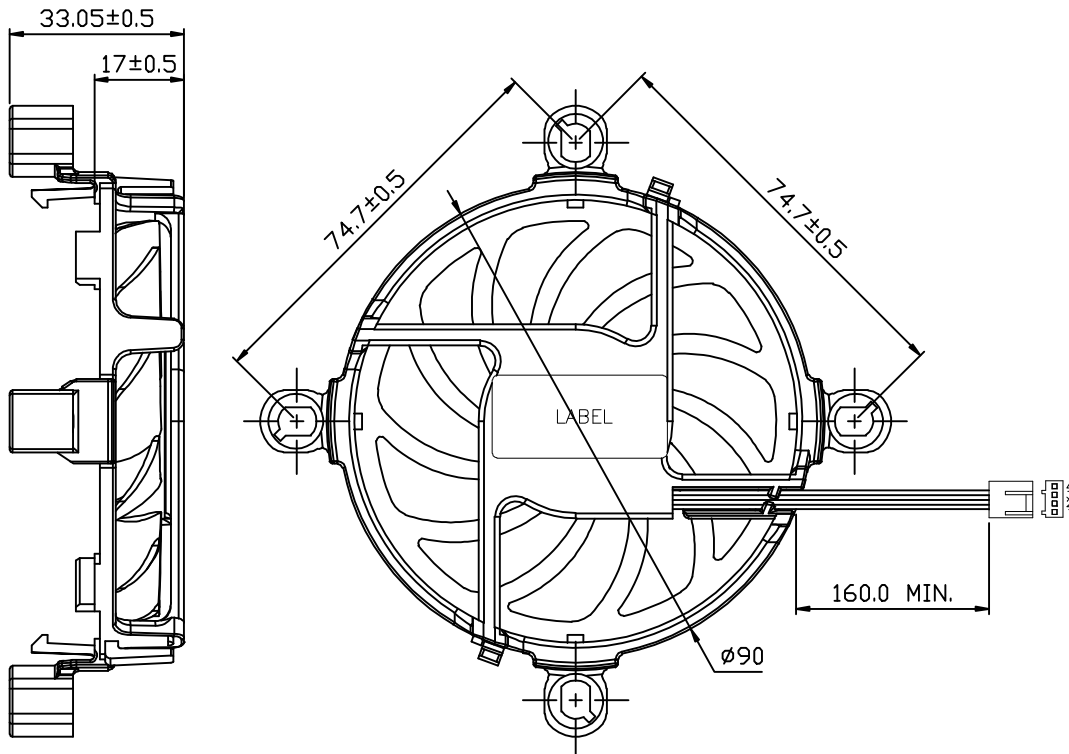
PART NO:

DELTA MODEL: AUC0912D-AF1F

9. DIMENSION DRAWING:

LABEL:

DELTA AUC0912D
-AF1F
yymmdd
CHINA



UNIT: mm

NOTE :

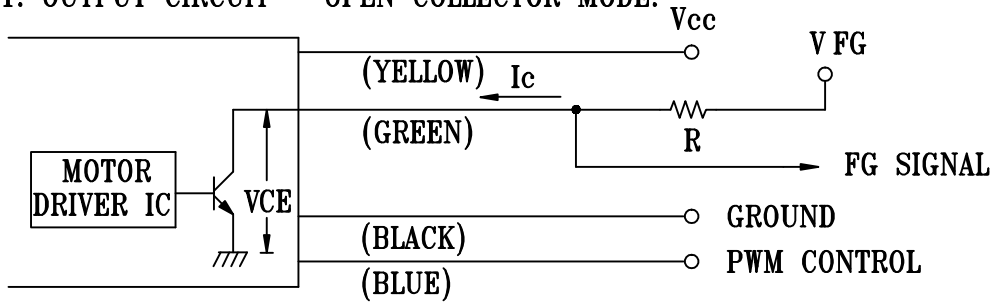
1. LEAD WIRE: UL 10368 -F- AWG #28
PIN 1 : BLACK WIRE: NEGATIVE(-)
PIN 2 : YELLOW WIRE: POSITIVE(+)
PIN 3 : GREEN WIRE: TACHOMETER OUTPUT (F00)
PIN 4 : BLUE WIRE: SPEED CONTROL (PWM)
2. HOUSING : MOLEX 47054-1000 OR EQUIVALENT
3. TERMINAL : MOLEX 2759T 08-50-0113 OR EQUIVALENT
4. THIS PRODUCT IS RoHS COMPLIANT
5. DELTA'S RESTRICTIONS ON HALOGEN APPLY ONLY TO BROMINATED AND CHLORINATED COMPOUNDS. NO OTHER HALOGEN IS RESTRICTED. SUBSTANCES RESTRICTIONS FOR HALOGEN-FREE (INCLUDE FAN PLASTIC PARTS, PWB BOARD, IC, ELECTRICAL MATERIALS & CABLE ASSY),
 - a. BROMINE(Br) < 900 PPM,
 - b. CHLORINE(Cl) < 900 PPM
 - c. (Br) + (Cl) < 1500 PPM.

PART NO:

DELTA MODEL: AUC0912D-AF1F

10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



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

10-2. SPECIFICATION:

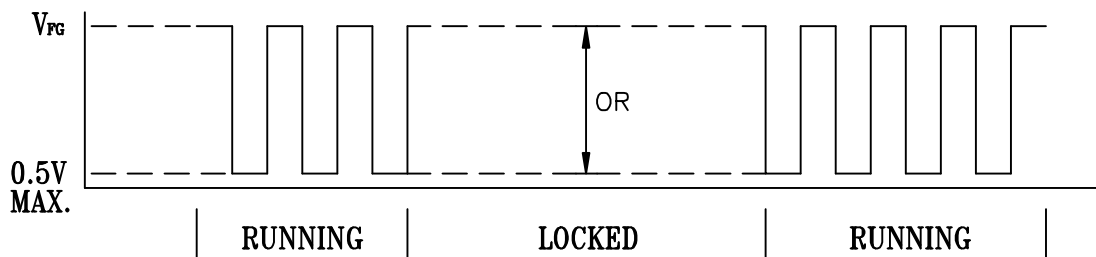
$V_{CE} \text{ (sat)} = 0.5V \text{ MAX.}$

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

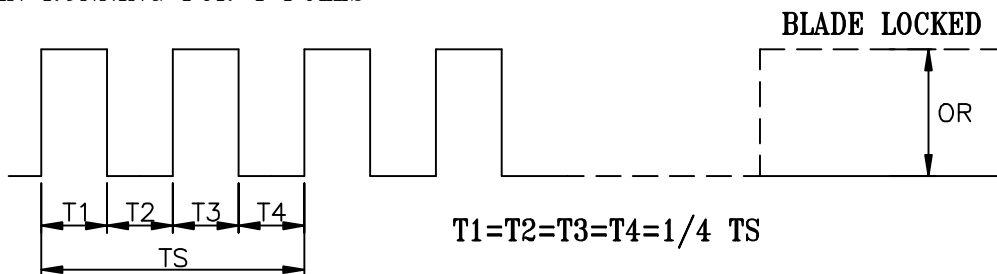
$I_c = 5mA \text{ MAX.}$

$R \geq V_{FG} / I_c$

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

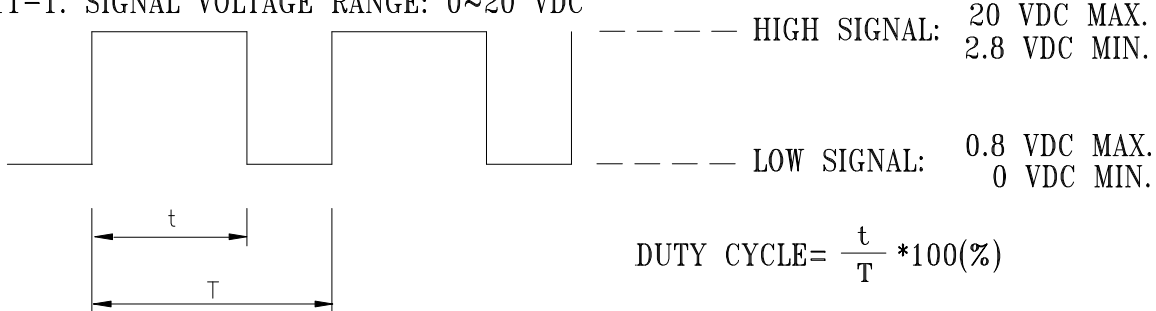
*4 POLES

PART NO:

DELTA MODEL: AUC0912D-AF1F

11. PWM CONTROL SIGNAL:(FAN ON SINK)

11-1. SIGNAL VOLTAGE RANGE: 0~20 VDC



- THE PREFERRED OPERATING POINT FOR THE FAN IS 25KHZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.

11-2. SPEED VS PWM CONTROL SIGNAL:

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

DUTY CYCLE (%)	SPEED R.P.M.	CURRENT (A) TYP.
100	3100±10%	0.15
0~20	1000±200	0.03

* PWM SIGNAL
PWM FREQUENCY = 25KHz

