SPECIFICATION FOR APPROVAL

Customer			
Description	DC FAN		
Part No.		**Rev.**	
Delta Model No.	AFB1224EHE-EP	**Rev.**	00
Sample Issue No.			
Sample Issue Date.	Jun 28, 12		

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

APPROVED BY : _____

DATE : _____

DELTA ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED.
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SPECIFICATION FOR APPROVAL
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Customer:

Description: DC FAN

Customer P/N: REV:

Delta Model NO.: AFB1224EHE-EP DELTA SAFETY MODEL NO.: AFB1224EHE

Sample Rev: 00 Issue NO:

Sample Issue Date: Jun 28, 12 Quantity:

1. SCOPE:

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS AXIAL FLOW FAN.

2. CHARACTERS:

ALL CHARACTERS ARE MEASURED UNDER THE STANDARD ENVIRONMENTAL CONDITION (25°C AND 1 ATM).

ITEM	DESCRIPTION
RATED VOLTAGE	24 VDC
OPERATION VOLTAGE	21.6 - 26.4VDC
MINIMUM START DUTY	30% (MAX) @24V, 25KHZ
INPUT CURRENT	0.85 (MAX. 1.05) A (SAFETY CURRENT 1.05A)
INPUT POWER	20.40 (MAX. 25.20) W
SPEED	4600 ± 10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	6.019 (MIN. 5.417) M^3/MIN. 212.573 (MIN. 191.315) CFM
MAX.AIR PRESSURE (AT ZERO AIRFLOW)	21.427 (MIN. 17.364) mmH_2O 0.844 (MIN. 0.683) $inchH_2O$
ACOUSTICAL NOISE (AVG.)	58.5 (MAX. 62.5) dB-A
INSULATION TYPE	UL: CLASS A
INGRESS PROTECTION	IP56 (IEC60529 STANDARD)
SALT FOG PROTECTION	30 DAYS (GR-487)

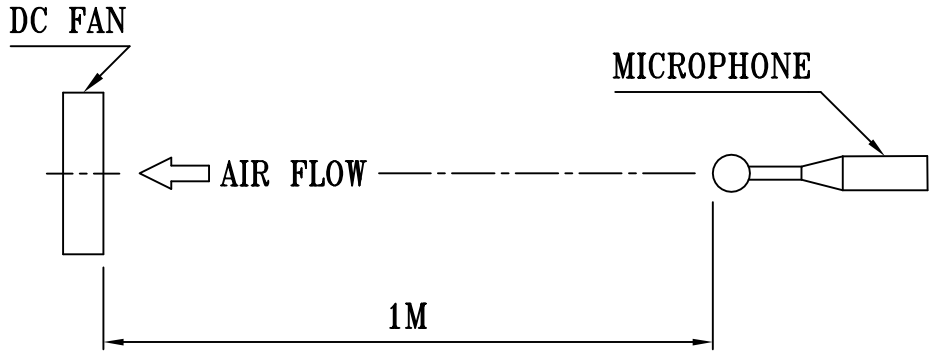
(continued)

PART NO:

DELTA MODEL: AFB1224EHE-EP

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 (L10) (AT LABEL VOLTAGE)	L10, 70,000 HOURS 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 1061 AWG #24 BLACK WIRE NEGATIVE(GND) RED WIRE POSITIVE(Vcc) BLUE WIRE FREQUENCY SIGNAL(FOO) YELLOW 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: AFB1224EHE-EP

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 ---------- TWO BALL BEARINGS

3-5. WEIGHT ---------- 350 GRAMS (REF.)

4. ENVIRONMENTAL:

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

4-2. STORAGE TEMPERATURE ---------- -40 TO +75 DEGREE C

4-3. OPERATING HUMIDITY ---------- 5 TO 90 % 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.

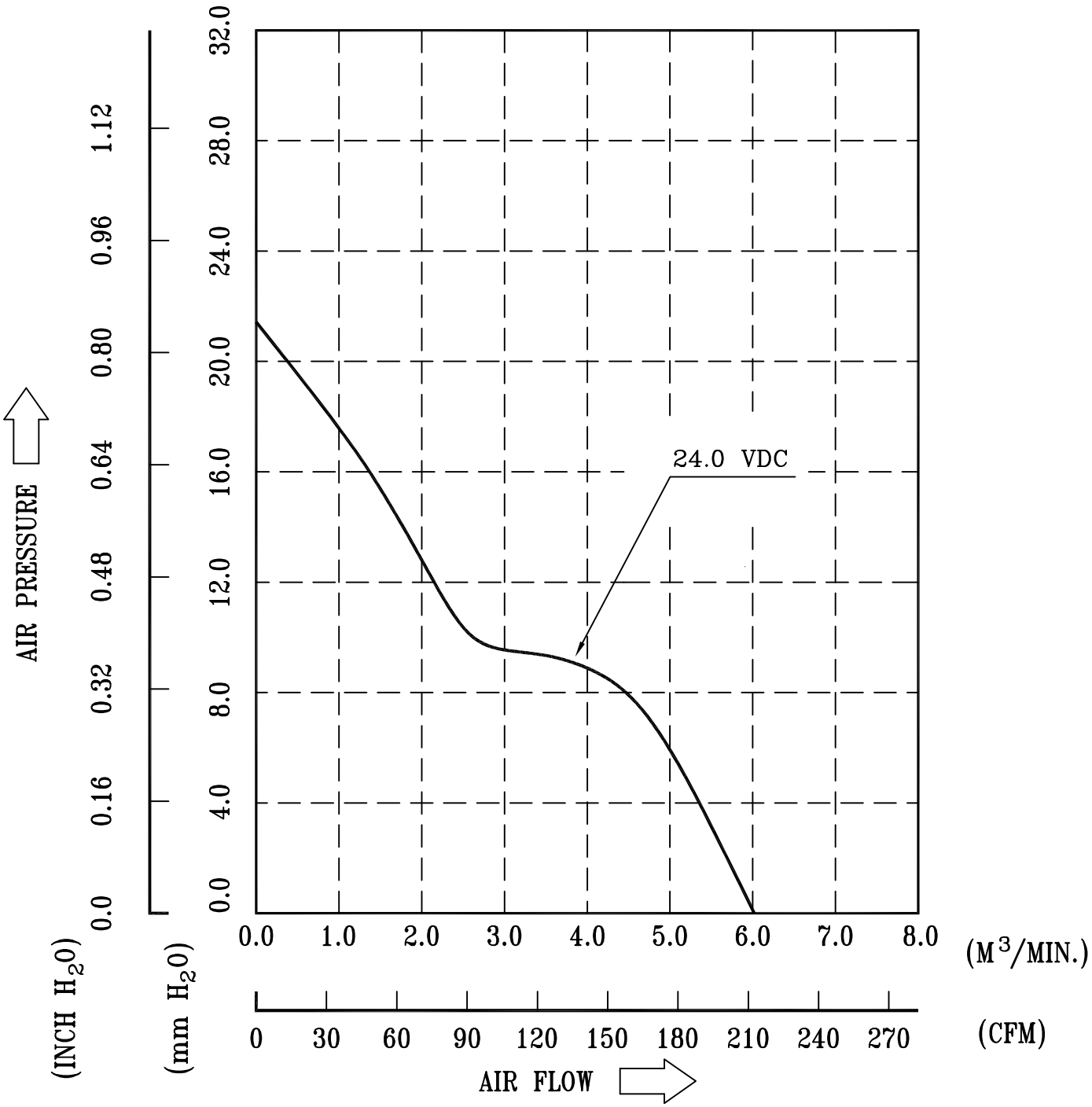
7. PRODUCTION LOCATION

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

PART NO:

DELTA MODEL: AFB1224EHE-EP

8. P & Q CURVE:



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

PART NO:

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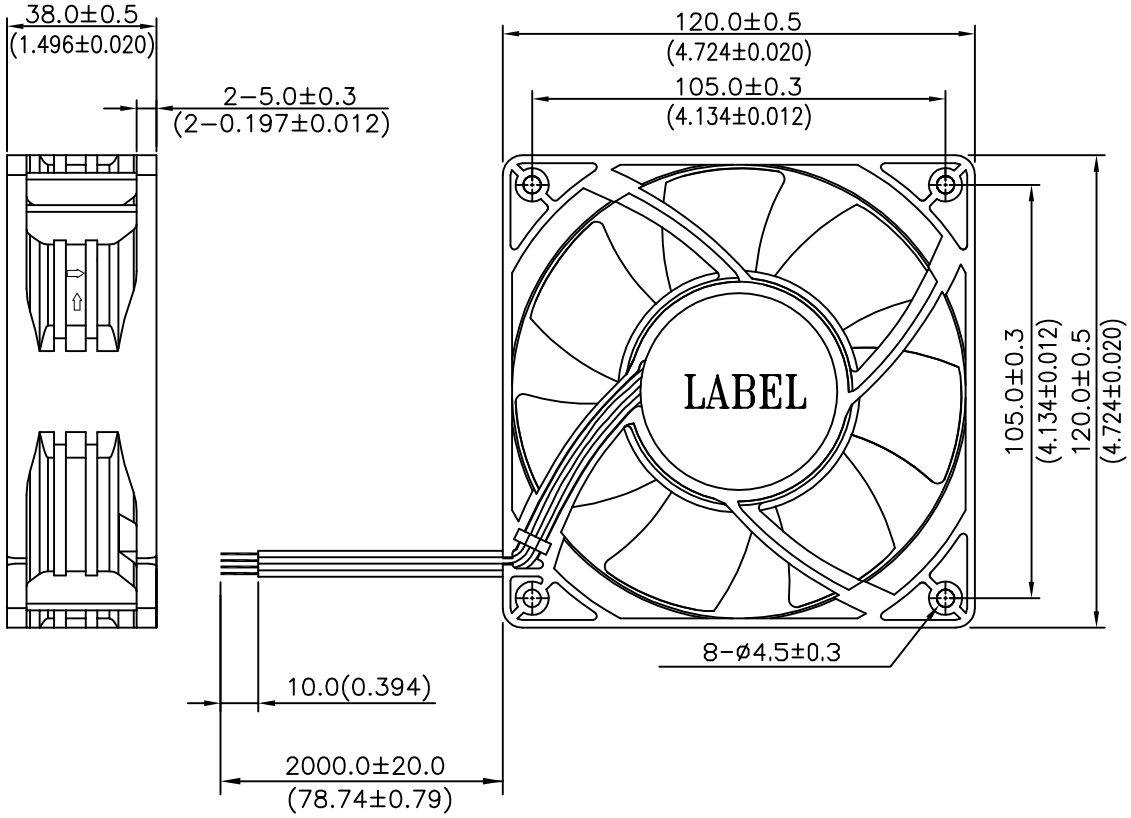
9. DIMENSION DRAWING:

LABEL:

OR

OR

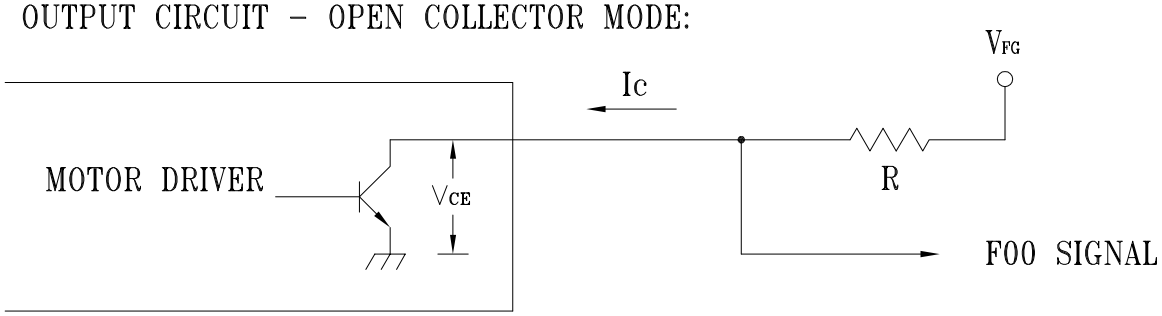


NOTES:

1. WIRE UL1061 AWG#24
   RED WIRE----------(+)
   BLACK WIRE----------(-)
   BLUE WIRE----------(FOO)
   YELLOW WIRE----------(PWM)
2. THIS PRODUCT IS RoHS COMPLIANT

10. FREQUENCY GENERATOR (F00) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



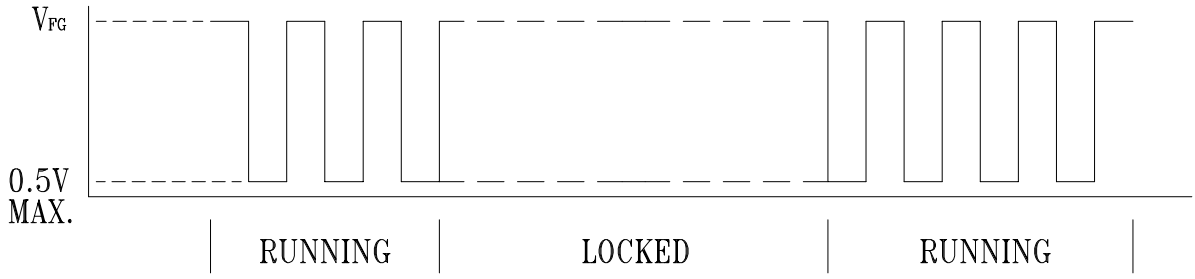
CAUTION:
THE LEAD WIRE OF FG SIGNAL CAN NOT TOUCH
THE LEAD WIRE OF POSITIVE OR NEGATIVE.

2. SPECIFICATION:

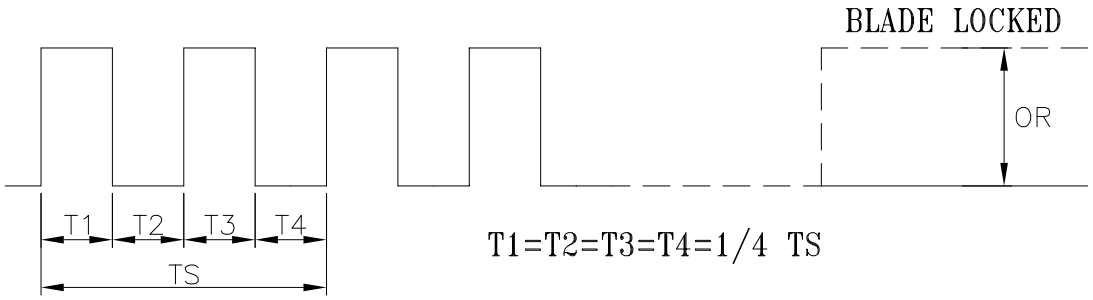
V_{CE} (sat)=0.5V MAX. V_{FG} =5.0 TYP.(Vcc MAX.)

I_C =5mA MAX. $R \geq V_{FG}/I_C$

3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES

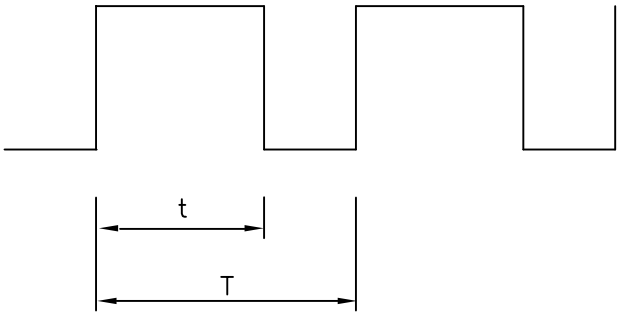


T1=T2=T3=T4=1/4 TS

N=R.P.M
TS=60/N(SEC)
*VOLTAGE LEVEL AFTER BLADE LOCKED
*4 POLES

11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~20 VDC



HIGH SIGNAL: 20 VDC MAX. 2.8 VDC MIN.

LOW SIGNAL: 0.8 VDC MAX. 0 VDC MIN.

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

- THE PREFERRED OPERATING POINT FOR THE FAN IS 25KHZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0 % DUTY CYCLE,THE ROTOR WILL SPIN AT STOP.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.
- AT RATED VOLTAGE ,25KHZ ,30% DUTY CYCLE ,THE FAN WILL BE ABLE TO START FROM A DEAD STOP .

12. SPEED VS PWM CONTROL SIGNAL: (AT RATED VOLTAGE & PWM FREQUENCY=25KHZ)

DUTY CYCLE (%)	SPEED R.P.M.	CURRENT (A) TYP.
100	4600±10%	0.85
0	0	0.01

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE: