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Rev
24VHE-TC5F Rev. <u>00</u>
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	E COPY OF THIS SPECIFICATION SIGNED APPROVAL FOR PRODUC-MENT.
APPROVED BY	:
DATE	:

# DELTA ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED.

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CHACHEONGSAO 24180 THAILAND.

# SPECIFICATION FOR APPROVAL

Cu	.st	01	$\mathbf{m}$	e	r	:

Description: DC FAN

Customer P/N: REV:

Delta Model NO.: AFB1224VHE-TC5F

Sample Rev: 00 Issue N0:

Sample Issue Date: Apr 20, 10 Quantity:

#### 1. SCOPE:

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

### 2. CHARACTERS:

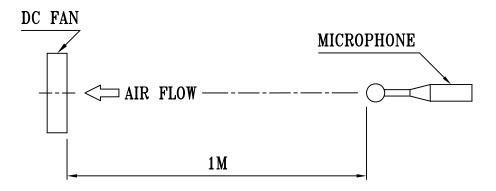
ITEM	DESCRIPTION
RATED VOLTAGE	24 VDC
OPERATION VOLTAGE	14.0 - 27.6 VDC
INPUT CURRENT	0.36 (MAX. 0.57) A
INPUT POWER	13.68 (MAX. 8.64) W
SPEED	4000±10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	4.201 (MIN. 3.780 ) M <sup>3</sup> /MIN. 148.356 (MIN. 133.488) CFM
MAX.AIR PRESSURE (AT ZERO AIRFLOW)	$15.296$ (MIN. $12.389$ ) mmH $_20$ $0.601$ (MIN. $0.487$ ) inchH $_20$
ACOUSTICAL NOISE (AVG.)	51.0 (MAX. 55.0) dB-A
INSULATION TYPE	UL: CLASS A

(continued)

PART NO: DELTA MODEL: AFB1224VHE-TC5F

	,
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	70,000 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 1007 -F- AWG #24 BLACK WIRE NEGATIVE(-) RED WIRE POSITIVE(+) BLUE WIRE FREQUENCY(-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.

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PART NO.			
DELTA MODEL: AF	B1224VHE-TC5F		
3. MECHANICAL:			
3-1. DIMENSION	NS	SEE DIMEN	NSIONS DRAWING
3-2. FRAME		PLA	STIC UL: 94V-0
3-3. IMPELLER		PLA	STIC UL: 94V-0
3-4. BEARING S	SYSTEM	TWO	BALL BEARINGS
3-5. WEIGHT -			330 GRAMS
3-6. INGRESS 1	PROTECTION		IP55
4. ENVIRONMENTA	L:		
4-1. OPERATING	G TEMPERATURE	<b>-</b> 10 TO	+70 DEGREE C
4-2. STORAGE	TEMPERATURE	<b>-</b> 40 TO	+75 DEGREE C
4-3. OPERATING	G HUMIDITY		5 TO 90 % RH
4-4. STORAGE	HUMIDITY		5 TO 95 % RH
5. PROTECTION:			
5-1. LOCKED R	OTOR PROTECTION		
		PROTECTS MOTOR FROM	
5-2. POLARITY	PROTECTION		
	ELE OF WITHSTANDING ATIVE LEADS.	IF REVERSE CONNECTIO	N FOR POSITIVE

## 6. RE OZONE DEPLETING SUBSTANCES:

6-1. NO CONTAINING PBBs, PBB0s, CFCs, PBBEs, PBDPEs AND HCFCs.

## 7. PRODUCTION LOCATION

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

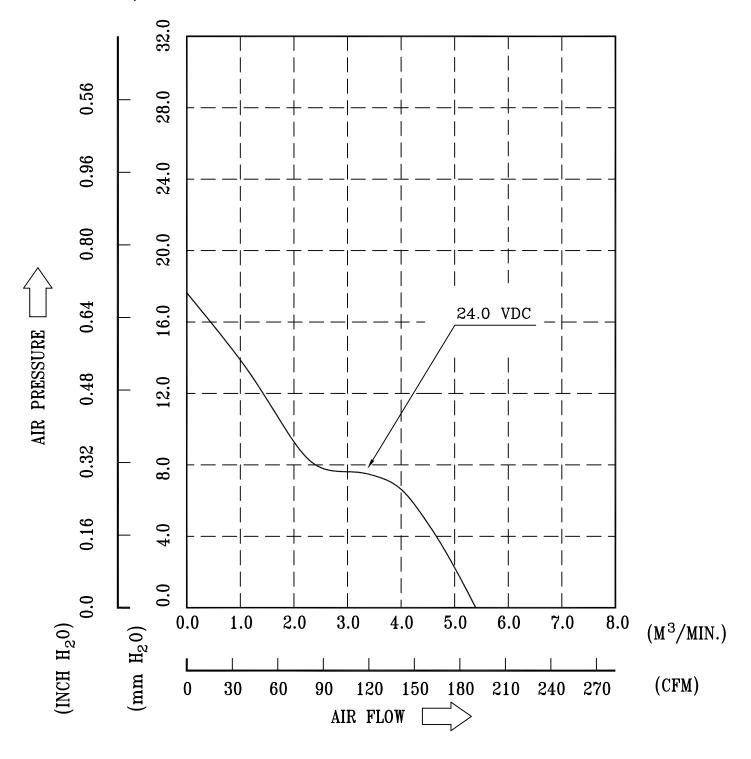
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PART NO:

DELTA MODEL: AFB1224VHE-TC5F

DELIA MODEL. AFB12247HE-103F

## 8. P & Q CURVE:



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

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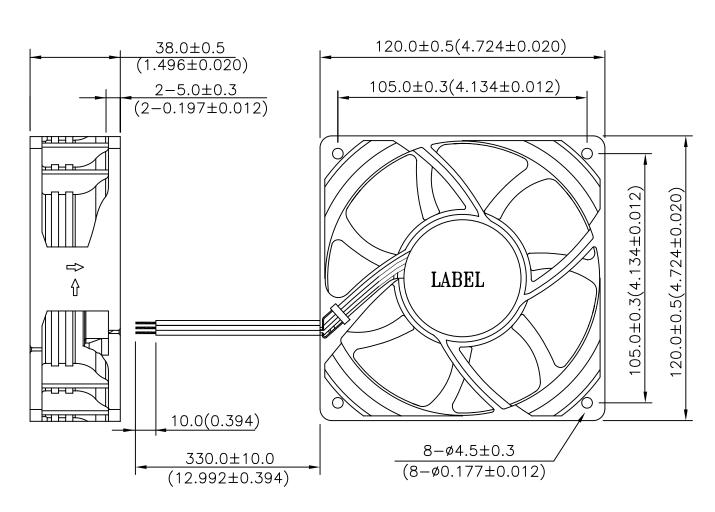
### PART NO:

## DELTA MODEL: AFB1224VHE-TC5F

### 9. DIMENSION DRAWING:

### LABEL:





NOTES:

UNIT: mm(INCH)

- 1. WIRE: UL1007 AWG#24

  BLACK WIRE----(-)

  RED WIRE----(+)

  BLUE WIRE----(-F00)
- 2. FOR IP55 PROTECTION
- 3. THIS PRODUCT IS ROHS COMPLIANT

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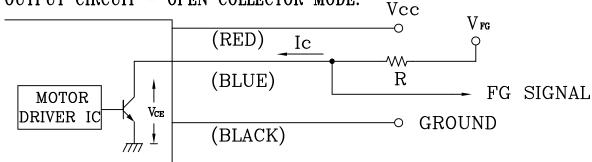
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PART NO:

DELTA MODEL: AFB1224VHE-TC5F

## 10. FREQUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



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

### 2. SPECIFICATION:

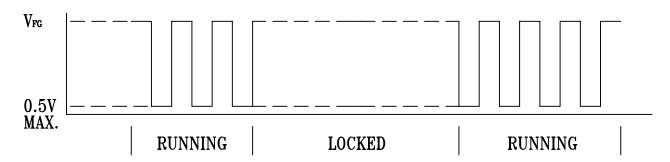
Vce(sat)=0.5V MAX

 $V_{FG}=27.6V$  MAX

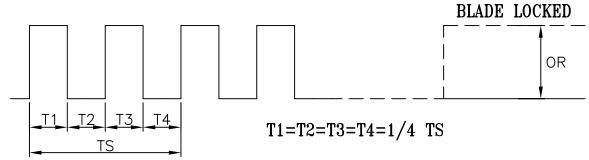
 $I_c = 5mA$  MAX.

 $R \ge V_{FG} / I_{C}$ 

### 3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



N=R.P.M

TS=60/N(SEC)

\*VOLTAGE LEVEL AFTER BLADE LOCKED

\*4 POLES



# **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 " $4.7\mu F$  or greater" capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.

Doc. No: FMBG-ES Form 001 Rev. 01 Date: June 24, 2009

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