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 BANGNA-TRAD RD., TAMBON BANGWUA,  
 AMPHUR BANGPAKONG CHACHOENGSAO  
 24180 THAILAND

SPECIFICATION FOR APPROVAL  
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Customer:

Description: DC FAN

Customer P/N:

REV:

Delta Model NO.: AFB0412LB-F00

Sample Rev: 02

Issue NO:

Sample Issue Date: Apr 30, 08

Quantity:

1. SCOPE:

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS AXIAL FLOW FAN. THE FAN MOTOR IS WITH TWO PHASES AND FOUR POLES.

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	12 VDC
OPERATION VOLTAGE	7.0 - 13.8 VDC
INPUT CURRENT	0.06 (MAX. 0.09) A
INPUT POWER	0.72 (MAX. 1.08) W
SPEED	5000 R.P.M. (REF.)
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	0.184 (MIN. 0.166 ) M <sup>3</sup> /MIN. 6.50 (MIN. 5.86 ) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	3.67 (MIN. 2.97 ) mmH <sub>2</sub> O 0.144 (MIN. 0.117 ) inchH <sub>2</sub> O
ACOUSTICAL NOISE (AVG.)	18.5 (MAX. 23.5) dB-A
INSULATION TYPE	UL: CLASS A

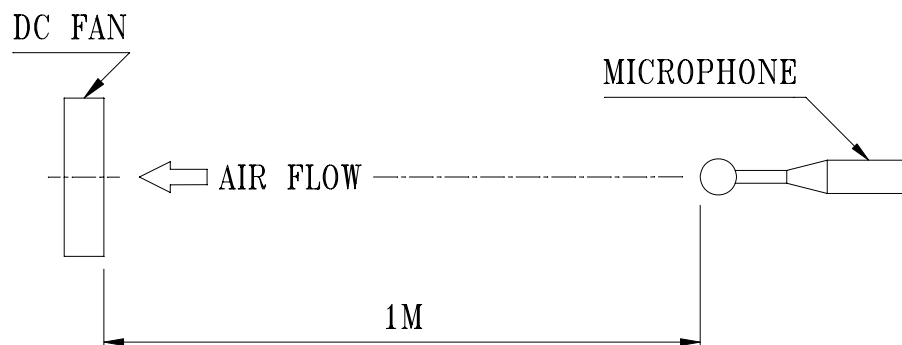
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INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE	70,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM NAME PLATE SIDE
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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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 ----- 25.0 GRAMS

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 OR TAIWAN.

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8. BASIC RELIABILITY REQUIREMENT:

8-1. THERMAL       LOW TEMPERATURE: -40°C  
CYCLING           HIGH TEMPERATURE: +80°C  
                    SOAK TIME: 30 MINUTES  
                    TRANSITION TIME < 5 MINUTES  
                    DUTY CYCLES: 5

8-2. HUMIDITY      TEMPERATURE: +25°C ~ +65°C  
EXPOSURE           HUMIDITY: 90-98% RH @ +65°C  
                    FOR 4 HOURS/CYCLE  
                    POWER: NON-OPERATING  
                    TEST TIME: 168 HOURS

8-3. VIBRATION     TEMPERATURE: +25°C  
                    ORIENTATION: X, Y, Z  
                    POWER: NON-OPERATING  
                    VIBRATION LEVEL: OVERALL gRMS=3.2

FREQUENCY(Hz)	PSD(G <sup>2</sup> /Hz)
10	0.040
20	0.100
40	0.100
800	0.002
1000	0.002

TEST TIME: 2 HOURS ON EACH ORIENTATION

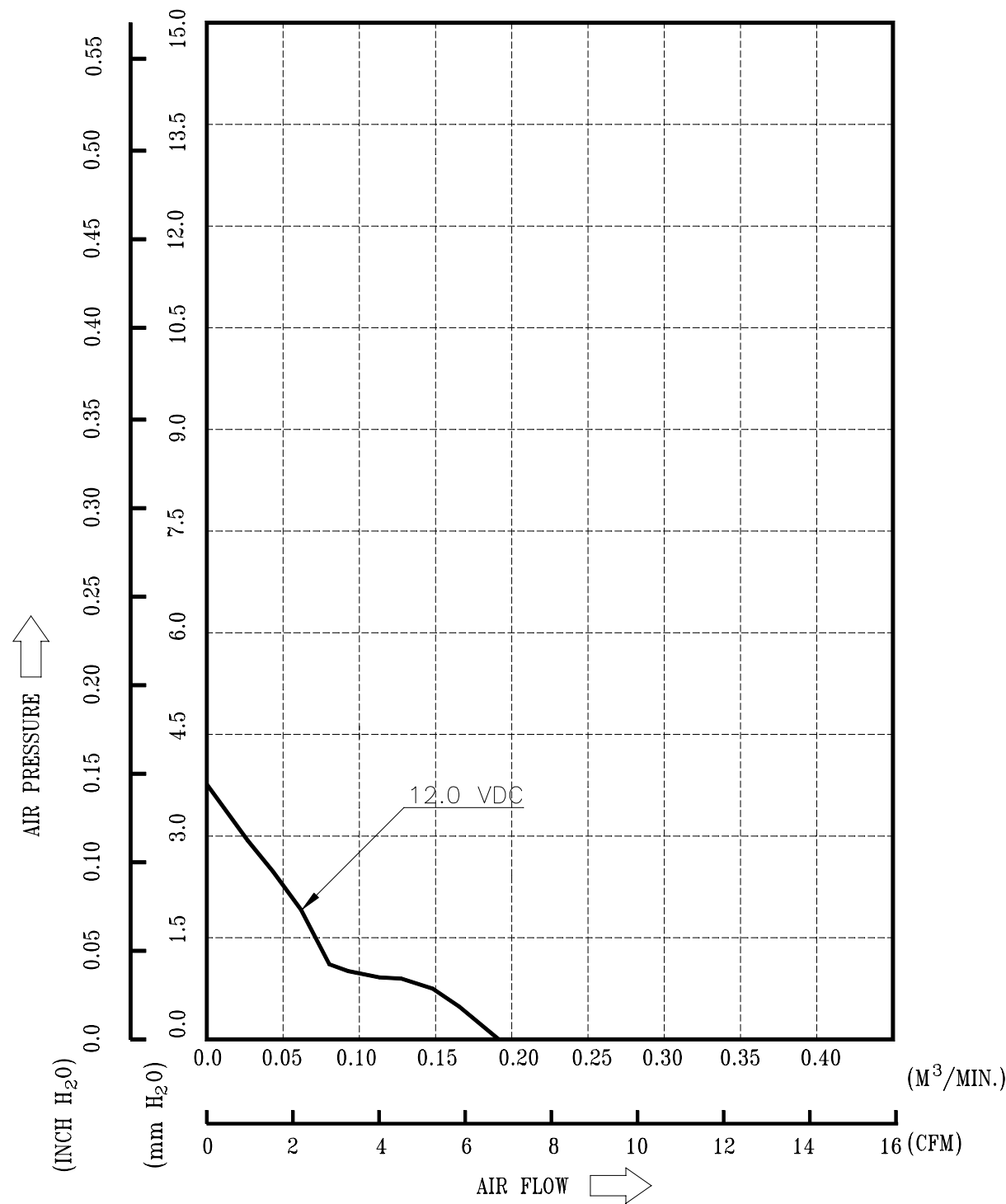
8-4. MECHANICAL    TEMPERATURE: +20°C  
SHOCK              ORIENTATION: X, Y, Z  
                    POWER: NON-OPERATING  
                    ACCELERATION: 20 G MIN.  
                    PULSE: 11 ms HALF-SINE WAVE  
                    NUMBER OF SHOCKS: 5 SHOCKS  
  FOR EACH DIRECTION

8-5. LIFE           TEMPERATURE: MAX , OPERATING TEMPERATURE  
                    POWER: OPERATING  
                    DURATION: 1000 HOURS MIN.

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9. P & Q CURVE:



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

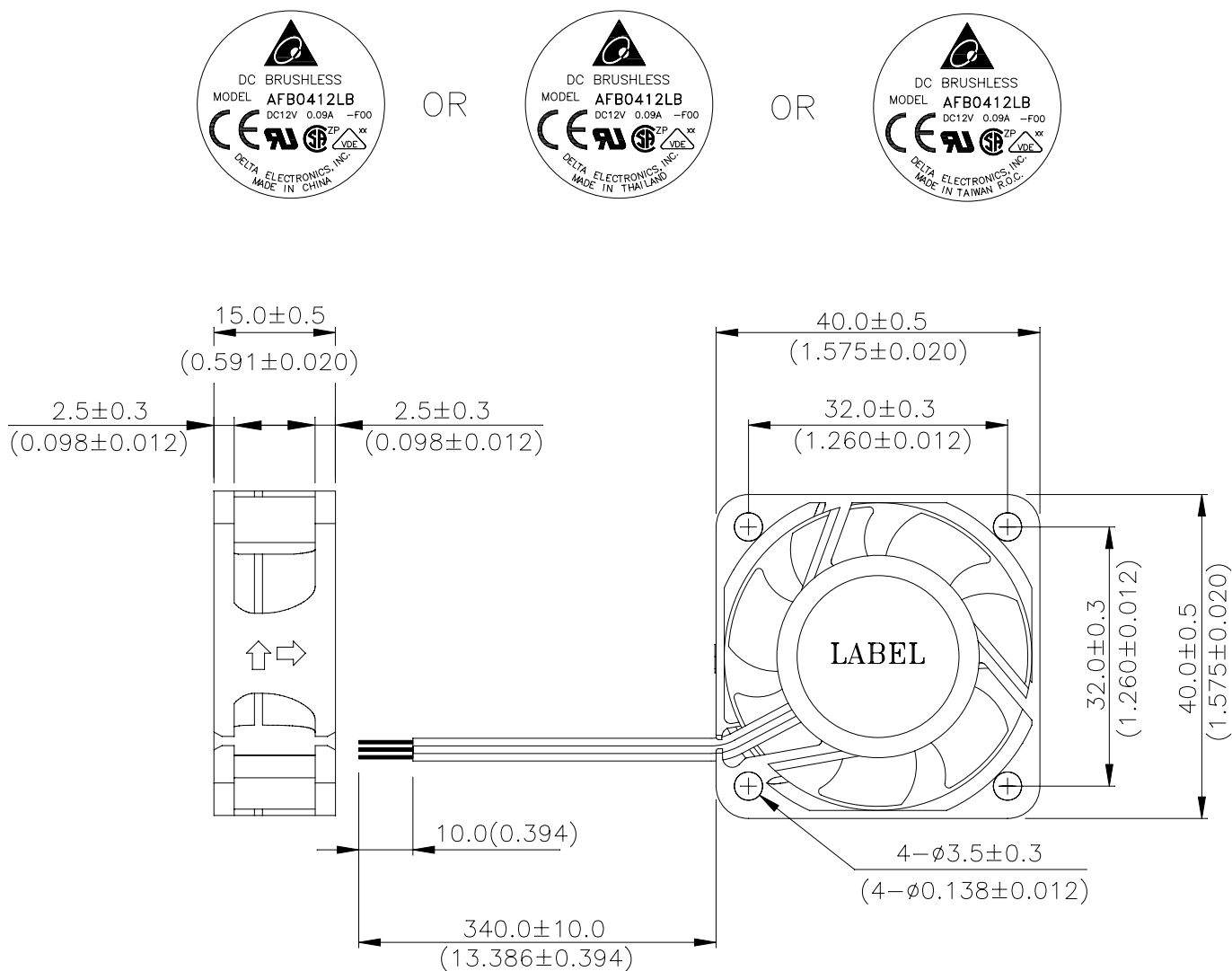
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## 10. DIMENSION DRAWING:

LABEL:



### NOTES:

1. WIRE: UL1007 AWG#24  
RED WIRE----(+)  
BLACK WIRE----(-)  
BLUE WIRE----(-F00)
2. THIS PRODUCT IS RoHS COMPLIANT

UNIT: mm(INCH)

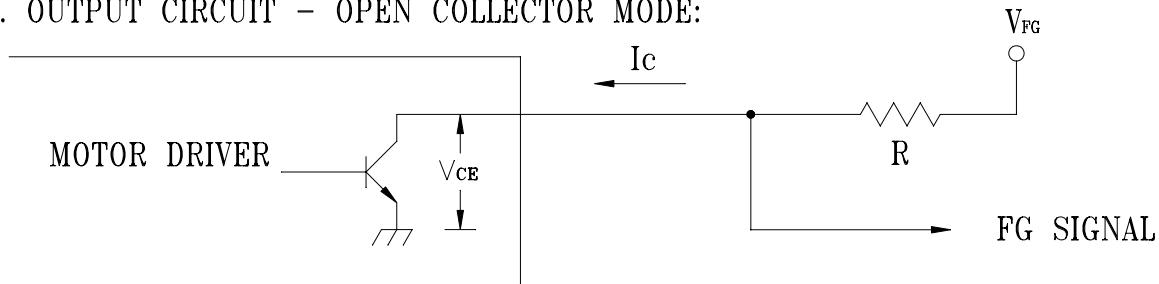
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## 11. FREQUENCY GENERATOR (FG) SIGNAL:

### 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:

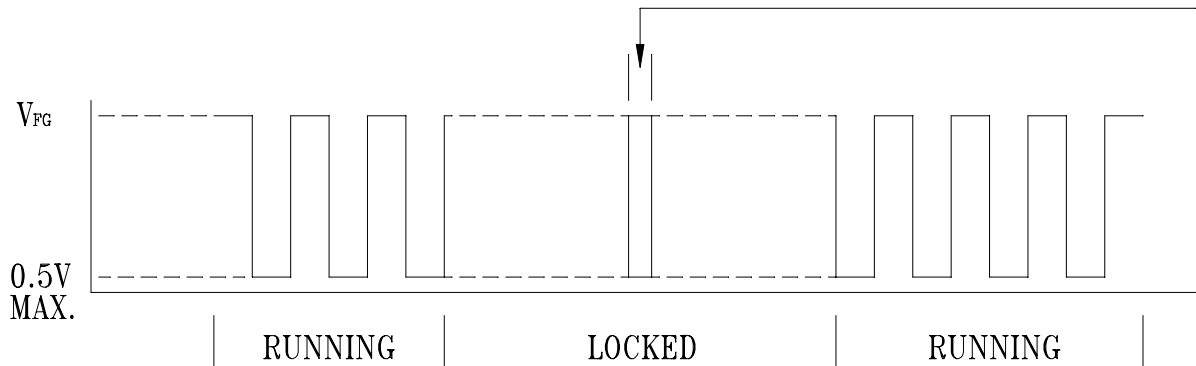
$V_{CE}(\text{sat}) = 0.5V \text{ MAX.}$

$V_{FG} = 15VDC \text{ MAX.}$

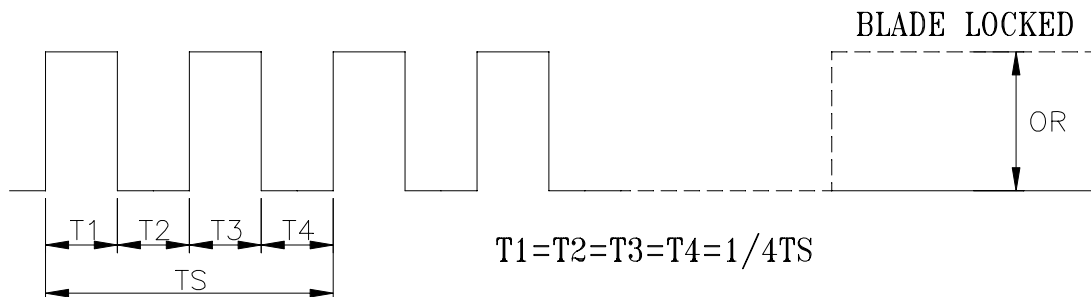
$I_c = 5mA \text{ MAX.}$

$R \geq V_{FG} / I_c$

### 3. FREQUENCY GENERATOR WAVEFORM: AUTOMATIC SELF ROTATION RECOVERY



FAN RUNNING FOR 4 POLES



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

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

\*VOLTAGE LEVEL AFTER BLADE LOCKED

\*4 POLES

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