SPECIFICATION FOR APPROVAL

Customer : STD

Description : DC FAN

Customer Part No. REV. :

Delta Model No. : PFB1224UHEP0 REV. : 01

Sample Issue No. :

Sample Issue Date : MAR.05 2020

DELTA ELECTRONICS, INC.

Specification For Approval

Customer : STD

Description : DC FAN

Customer P/N : rev. :

Delta model no. : PFB1224UHEP0 Delta Safety Model No.: PFB1224UHE

Sample revision. : 01 Issue no.:

Sample issue date : MAR.05 2020 Quantity :

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

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	24V
OPERATION VOLTAGE RANGE	21.6 - 26.4 VDC
INPUT CURRENT(AVG.) (AT RATED VOLTAGE)	2.00 (MAX. 2.40) A SAFETY CURRENT ON LABEL : 2.40A
INPUT POWER(AVG.) (AT RATED VOLTAGE)	48.0 (MAX. 57.60) W
SPEED (AT RATED VOLTAGE)	5500 ± 10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	7.16 (MIN. 6.444) M^3 /MIN. 252.85 (MIN. 227.565) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	35.877 (MIN. 29.061) mmH_2O 1.412(MIN. 1.144) inchH_2O
ACOUSTICAL NOISE (AVG.)	66.5 (MAX. 70.5) dB-A
INSULATION TYPE	UL: CLASS A
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)

(continued)

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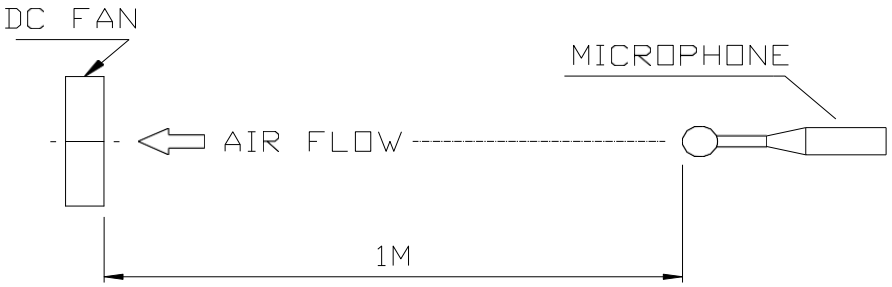
LIFE EXPECTANCE (L10) (AT LABEL VOLTAGE)	70,000 HOURS CONTINUOUS OPERATION AT 40°C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM NAME PLATE SIDE
LOCKED ROTOR PROTECTION	THE CURRENT WILL SHUT DOWN TO ZERO WHILE FAN'S BLADE IS LOCKED.

NOTES:

1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.
2. STANDARD AIR PROPERTY IS AIR AT (Td) 25°C TEMPERATURE, (RH) 65% RELATIVE HUMIDITY , AND (Pb) 760 mmHg BAROMETRIC PRESSURE.
3. THE VALUES WRITTEN IN PARENS , ( ), ARE LIMITED SPEC.
4. ACOUSTICAL NOISE MEASURING CONDITION:



NOISE IS MEASURED AT RATED VOLTAGE IN FREE AIR IN SEMI-ANECHOIC CHAMBER 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---------- 380 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
FAN'S PROTECTION WITHOUT FIRE IS PERFORMED IN 96 HOURS WHILE LOCKED ROTOR AT THE RATED VOLTAGE.

5-2. POLARITY PROTECTION
BE CAPABLE OF WITHSTANDING IF REVERSE CONNECTION FOR POSITIVEAND 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.

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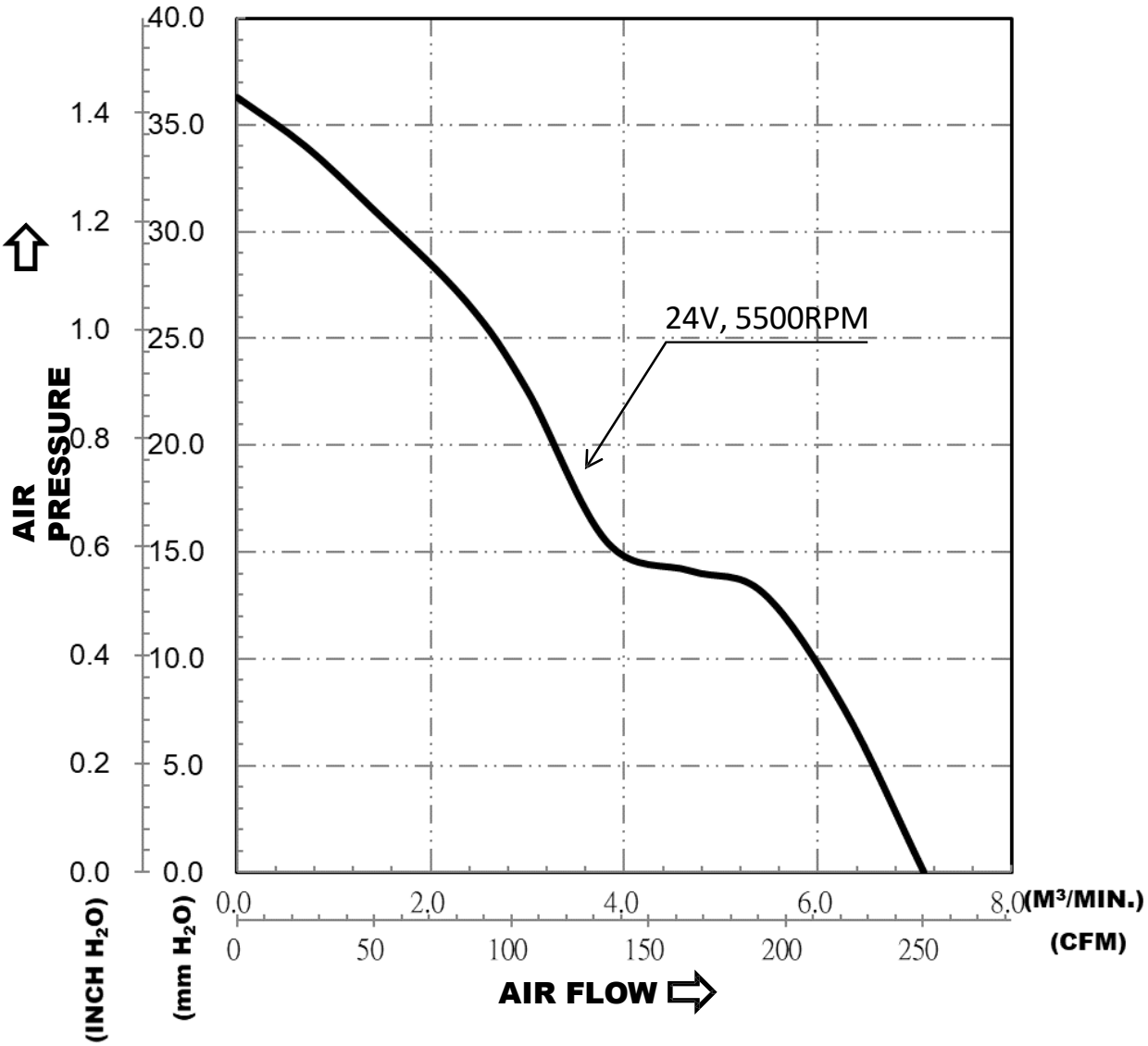
8. P & Q CURVE:



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

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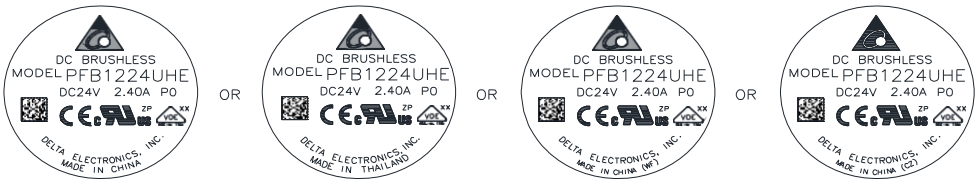
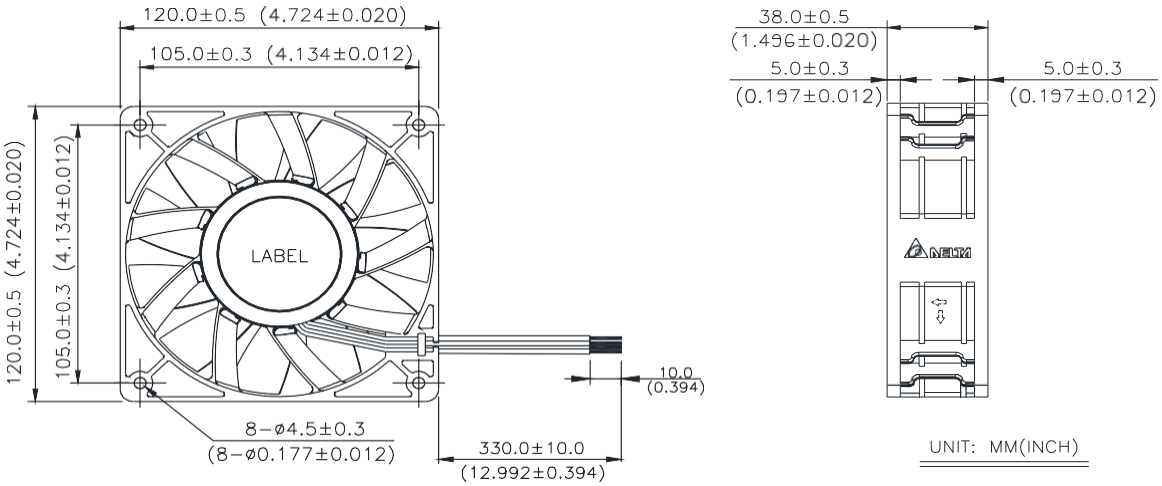
9. DIMENSION DRAWING:

LABEL:





NOTES:

1. THIS PRODUCT IS ROHS COMPLIANT.
2. CABLE WIRE: UL 1061 AWG #22
   RED WIRE ----(+)
   BLACK WIRE ----(-)
   BLUE WIRE ----(F00)
   YELLOW WIRE ----(PWM)

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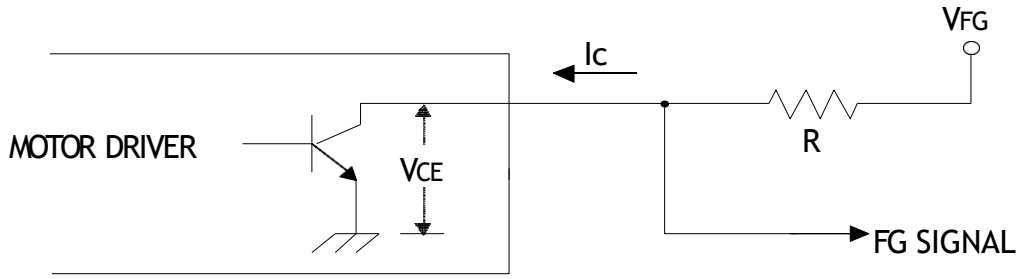
10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



CAUTION:

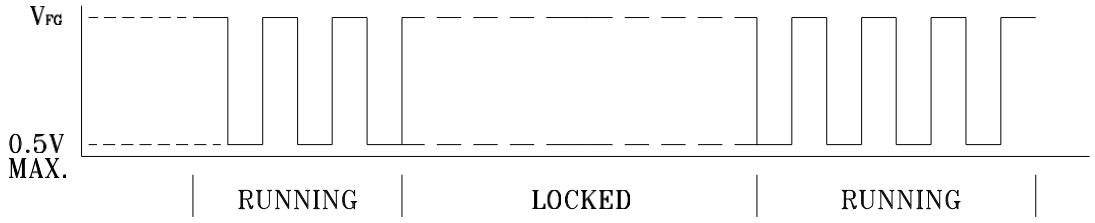
THE LEAD WIRE OF FG SIGNAL CAN NOT TOUCH THE LEAD WIRE OF POSITIVE OR NEGATIVE.

10-2. SPECIFICATION:

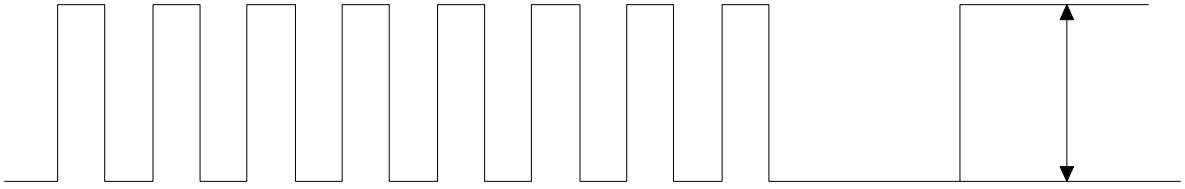
V_{FG}= 5.0 TYP.(Vcc MAX.) Ic = 5mA MAX.

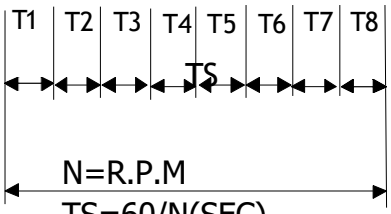
V_{CE}= 0.5V MAX. $R \geqq V_{FG}/Ic$

10-3. FREQUENCY GENERATOR WAVEFORM:



BLADE LOCKED





T1=T2=T3=T4=T5=T6=T7=T8=1/8 TS

N=R.P.M

TS=60/N(SEC)

*VOLTAGE LEVEL AFTER BLADE LOCKED

*8 POLES

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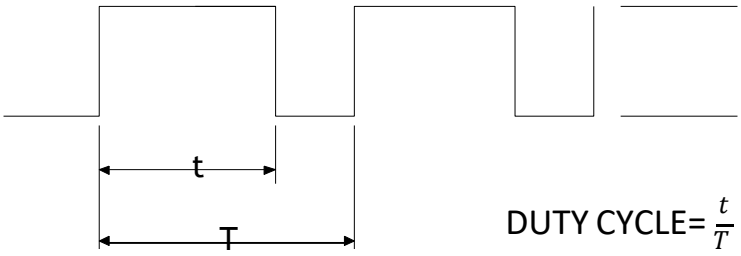
10.PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~15 VDC



HIGH SIGNAL: 15 VDC MAX. 3.3 VDC MIN.

LOW SIGNAL: 0.4 VDC MAX. 0 VDC MIN.

DUTY CYCLE= $\frac{t}{T}$

*THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
*AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
*AT 0% DUTY CYCLE,THE ROTOR WILL STOP SPINNING.
*THE FAN WILL SPIN AT MAXIMUM SPEED WHILE CONTROL SIGNAL LEAD IS DISCONNECTED.

11. SPEED VS PWM CONTROL SIGNAL:

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

DUTY CYCLE (%)	SPEED R.P.M.	CURRENT (A) TYP.
100	5500±10%	2.0
0	0	0.02

*PWM SIGNAL

PWM FREQUENCY = 25KHz