

Specification For Approval

Customer : STD

Description: DC FAN

Customer P/N:

rev. :

Delta model no. : PFB1224HE-00P0

Delta Safety Model No.: PFB1224HE-00

Sample revision. : 01

Issue no.:

Sample issue date: MAY.10 2021

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 RANGE	14.0 - 27.6 VDC
INPUT CURRENT(AVG.)★ (AT RATED VOLTAGE / FREE AIR)	1.00 (MAX. 1.33) A SAFETY CURRENT ON LABEL : 2.0A
INPUT POWER(AVG.)★ (AT RATED VOLTAGE / FREE AIR)	24.00 (MAX. 31.92) W
SPEED (AT RATED VOLTAGE / FREE AIR)	5800±10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	5.704 (MIN. 5.130) M ³ /MIN. 201.411 (MIN. 181.144) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	37.594 (MIN. 30.448) mmH ₂ O 1.480 (MIN. 1.199) inchH ₂ O
ACOUSTICAL NOISE (AVG.)	65.0 (MAX. 69.0) 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)

★AVG. IS THE AVERAGE VALUE DURING STEADY OPERATION, AND MAX. IS MAXIMUM AVERAGE VALUE INCLUDED PRODUCTION TOLERANCE. ABOUT THE PEAK VALUE, NEED TO USE OSCILLOSCOPE TO MEASURE.

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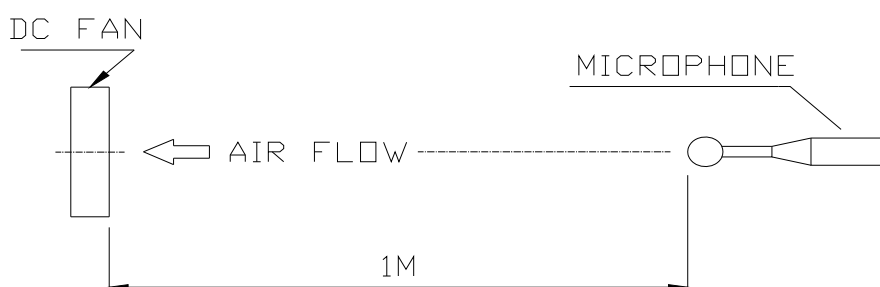
PART NO:

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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. THE MEASUREMENT READINGS ARE RECORDED AFTER STABLY WARMING UP IN 10 MINUTES.
2. THE TEST IS PERFORMED AT (Td) 25°C TEMPERATURE, (RH) 65% RELATIVE HUMIDITY , AND (Pb) 760 mmHg BAROMETRIC PRESSURE.
3. THE MEASUREMENT IS FOLLOWED ACCORDING TO SPEC WRITTEN IN PARENS ().
4. THE ACOUSTICAL NOISE MEASUREMENT SETUP AS BELOW:



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
POSITIVE AND NEGATIVE LEADS.

6. RE OZONE DEPLETING SUBSTANCES:

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

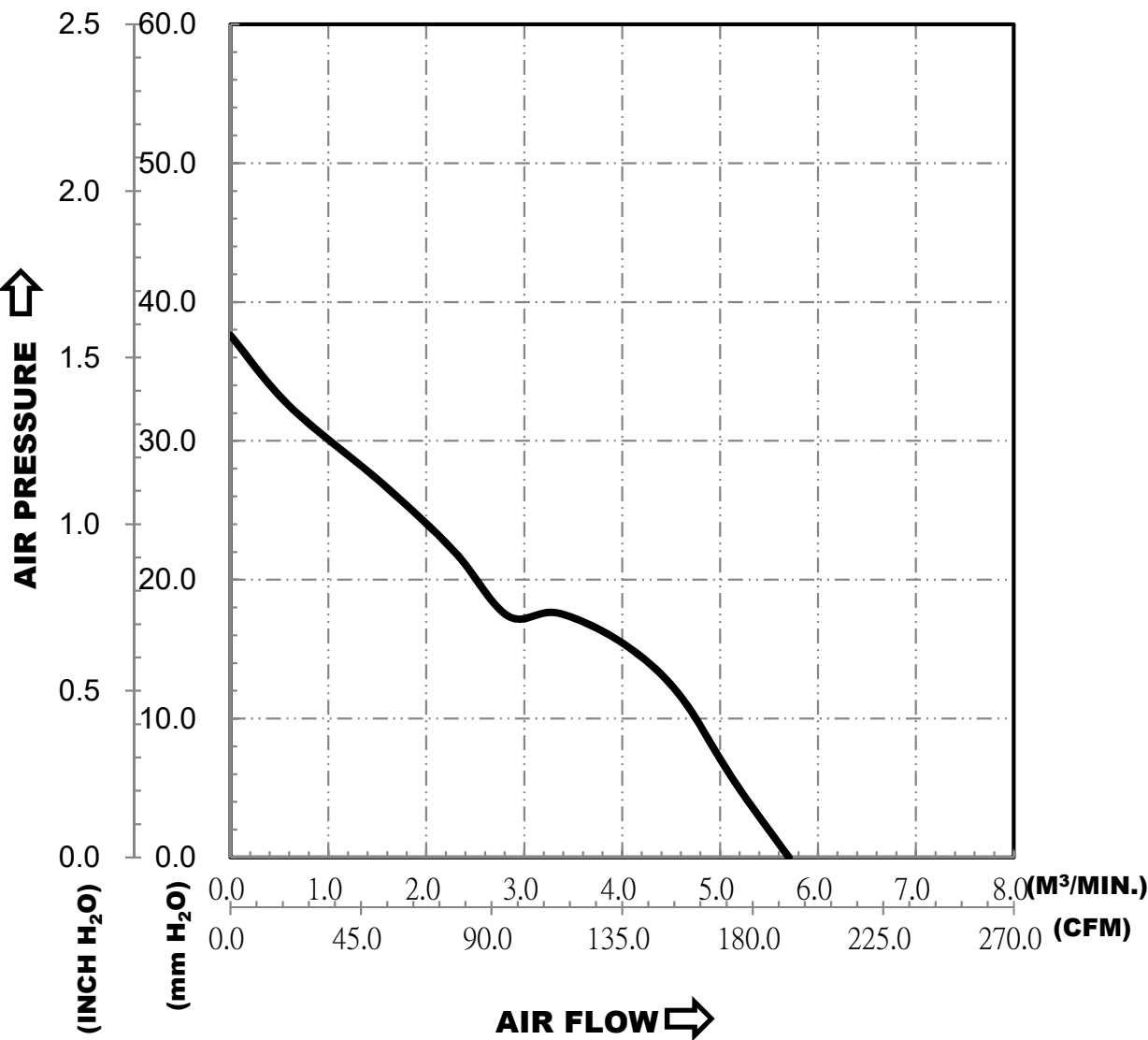
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:



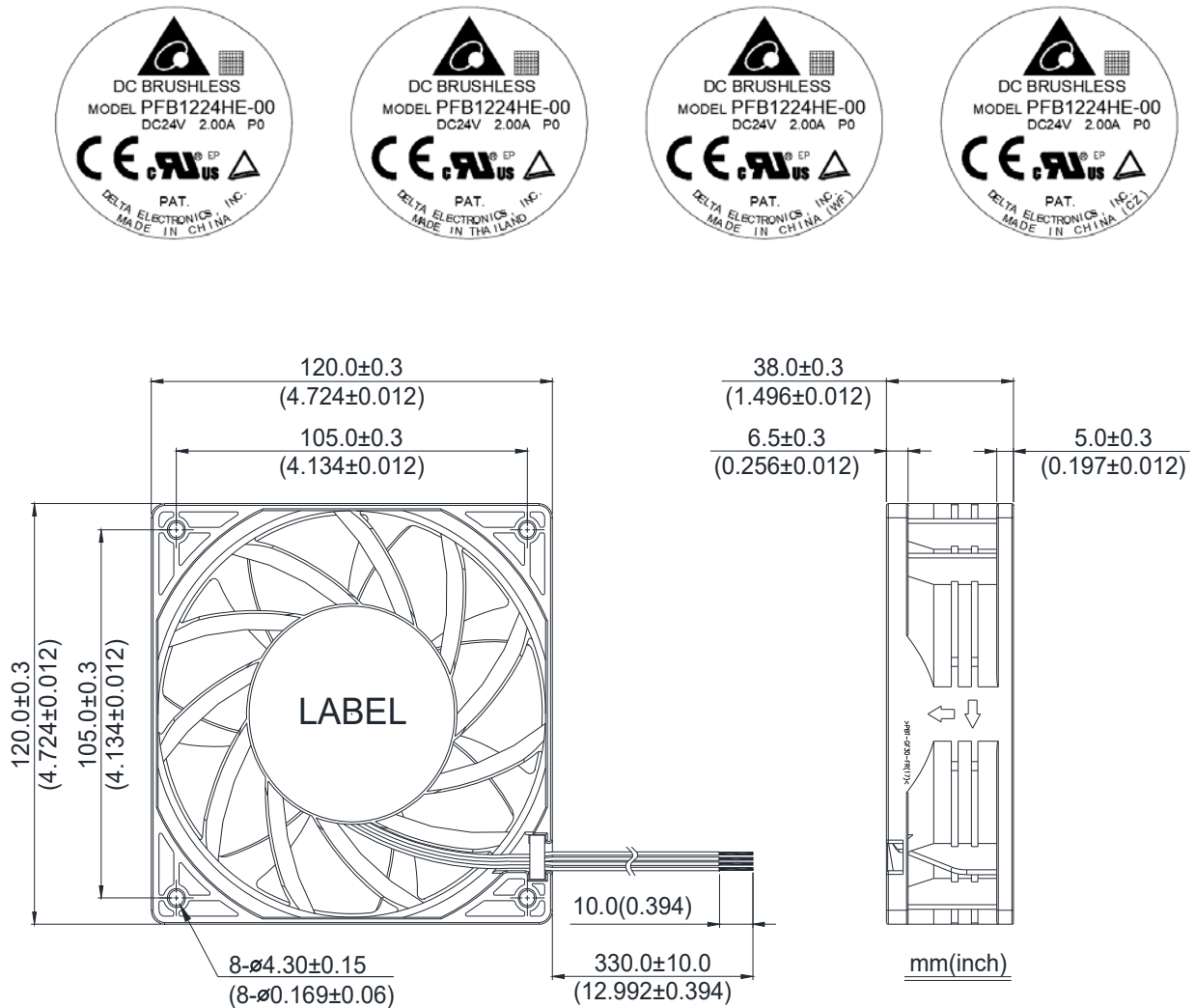
*TEST CONDITION: INPUT VOLTAGE-----OPERATION VOLTAGE
TEMPERATURE-----ROOM TEMPERATURE
HUMIDITY-----65%RH

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9. DIMENSION DRAWING:

LABEL:



NOTES:

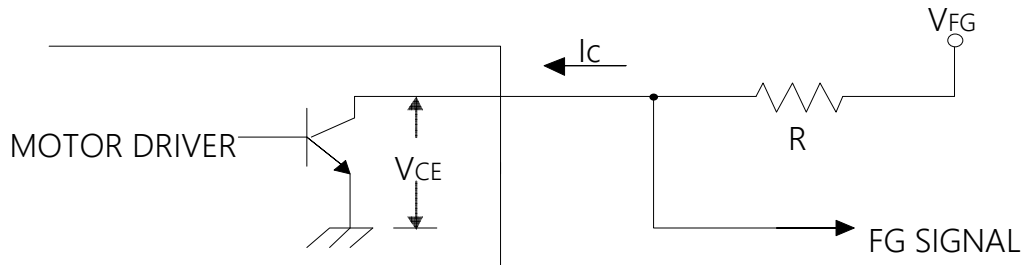
1. CABLE WIRE: UL1007 AWG#24
RED WIRE ---- (+)
BLACK WIRE ---- (-)
BLUE WIRE ---- (F00)
YELLOW WIRE ---- (PWM)
2. THIS PRODUCT IS ROHS COMPLIANT.

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10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



CAUTION:

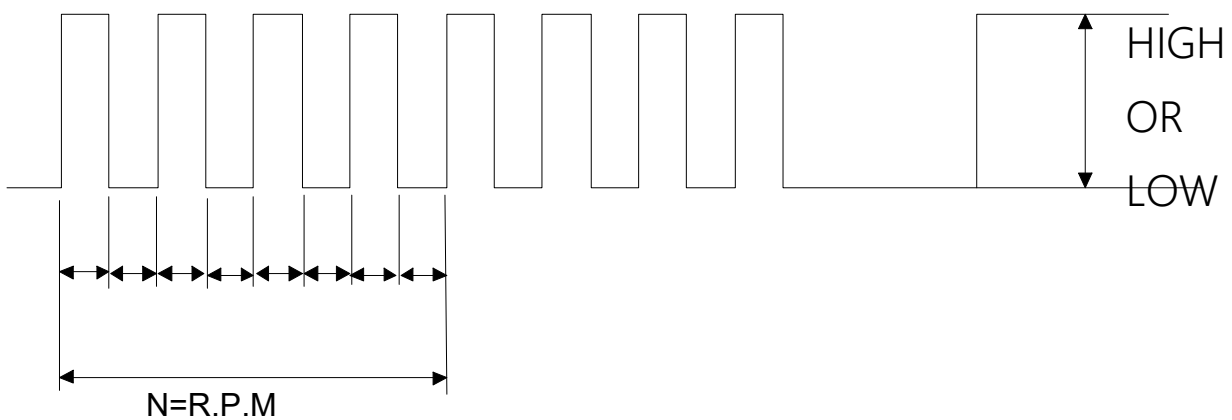
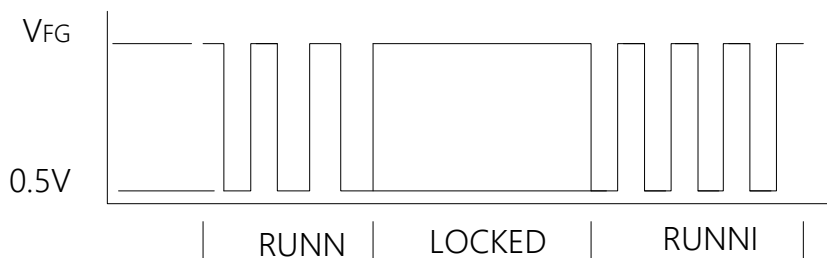
THE LEAD WIRE OF FG SIGNAL CAN NOT TOUCH THE LEAD WIRE OF POSITIVE OR NEGATIVE.

10-2. SPECIFICATION:

$V_{FG} = 5.0 \text{ TYP.}(V_{CC} \text{ MAX.})$ $I_c = 5\text{mA MAX.}$

$V_{CE} = 0.5\text{V MAX.}$ $R \geq V_{FG} / I_c$

10-3. FREQUENCY GENERATOR WAVEFORM:



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

*V_{FG} IS ALWAYS HIGH OR LOW LEVEL AFTER BLADE LOCKED

*8 POLES

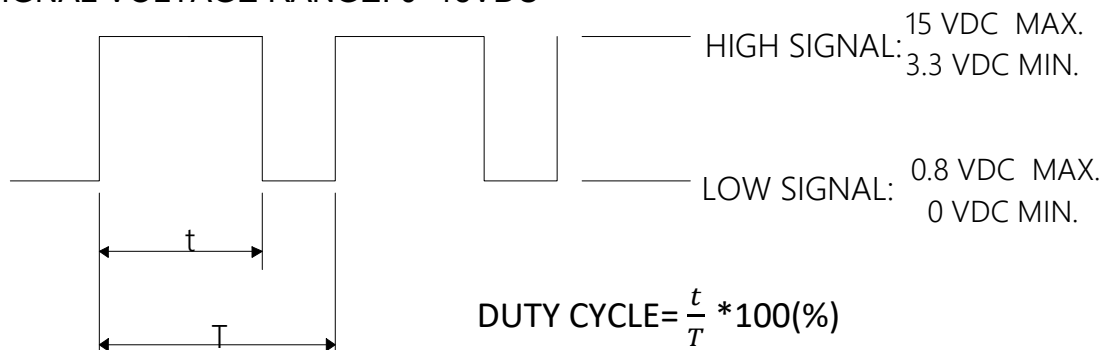
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勝特力電材超市-龍山店 886-3-5773766
勝特力電材超市-光復店 886-3-5729570
勝特力電子(上海) 86-21-34970699
勝特力電子(深圳) 86-755-83298787
<http://www.100y.com.tw>

11. PWM CONTROL SIGNAL:

11-1 SIGNAL VOLTAGE RANGE: 0~15VDC



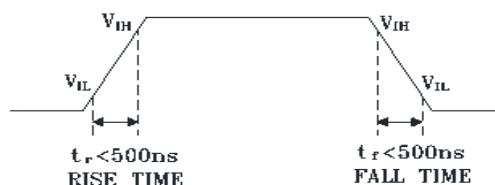
- THE PREFERRED OPERATING POINT FOR THE FAN IS 20KHZ.
- AT 100% DUTY CYCLE, THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0% DUTY CYCLE, THE ROTOR WILL STOP.
- WITH CONTROL SIGNAL LEAD DISCONNECTED , THE FAN WILL SPIN AT MAXIMUM SPEED.

11-2 THE REQUIREMENT OF WAVEFORM QUALITY OF PWM SIGNAL

- THE RECOMMENDED PWM SIGNAL FROM SYSTEM IS TTL ($t_r = 500ns$, $t_f = 500ns$) , EVEN IF THE PWM LEAD OF FAN IS DISCONNECTED.
- THE MAXIMUM PERMISSIBLE OF WAVEFORM DISTORTION:

$V_{IH} : (V_+ - 0.5) * 90\%$ RISE TIME : $t_r < 500ns$

$V_{IL} : (V_+ - 0.5) * 10\%$ FALL TIME : $t_f < 500ns$



11-3 SPEED VS PWM CONTROL SIGNAL:

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

*PWM SIGNAL

PWM FREQUENCY = 20KHz

DUTY CYCLE (%)	SPEED (R.P.M.)	CURRENT(A) (AVG.)★
100	5800±10%	1.00 (MAX. 1.33)
0	0	0.02 (MAX. 0.03)

★AVG. IS THE AVERAGE VALUE DURING STEADY OPERATION, AND MAX. IS MAXIMUM AVERAGE VALUE INCLUDED PRODUCTION TOLERANCE. ABOUT THE PEAK VALUE, NEED TO USE OSCILLOSCOPE TO MEASURE.

- MIN. STARTED DUTY CYCLE(at 25°C, 24.0VDC): 30 %

WHEN THE FAN BLADE IS IN THE COMPLETE STOP STATE AND THEN PROVIDE PWM TO START THE FAN IN ORDER TO ENSURE THAT THE FAN START-UP IS NORMAL FROM A DEAD STOP.