



SPECIFICATION FOR APPROVAL

Customer : STD

Description : DC FAN

Customer Part No. :

REV. :

Delta Model No. : PFB0412EN-E

REV. : 02

Sample Issue No. :

Sample Issue Date : JAN.09 2019

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

APPROVED BY:

DATE :

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STATEMENT OF DEVIATION

NONE

DESCRIPTION:

Specification For Approval

Customer : STD

Description : DC FAN

Customer P/N :

rev. :

Delta model no. : PFB0412EN-E

Delta Safety Model No.: N/A

Sample revision. : 02

Issue no.:

Sample issue date : JAN.09 2019

Quantity :

1. SCOPE:

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

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	12V
OPERATION VOLTAGE	10.8 - 13.2 VDC
START VOLTAGE	10.8 VDC
INPUT CURRENT(AVG.) #	2.60 (MAX. 3.5) A CURRENT ON LABEL: 4.00A
INPUT POWER(AVG.)	31.20 (MAX. 42.0) W
SPEED	32500± 10% R.P.M.
FAN FEEDBACK FUNCTION	THIS FAN IS OPEN LOOP DESIGN
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	1.076(MIN. 0.968) M ³ /MIN. 38.00 (MIN.34.20) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	188.722(MIN. 152.865) mmH ₂ O 7.43 (MIN. 6.018) inchH ₂ O
ACOUSTICAL NOISE (AVG.)	70.5 (MAX. 74.5) 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)

: THE MAX VALUE OF CONSUMING CURRENT DOES NOT REPRESENT THE PEAK VALUE, THE PEAK VALUE NEED MEASURE BY OSCILLOSCOPE.

(continued)

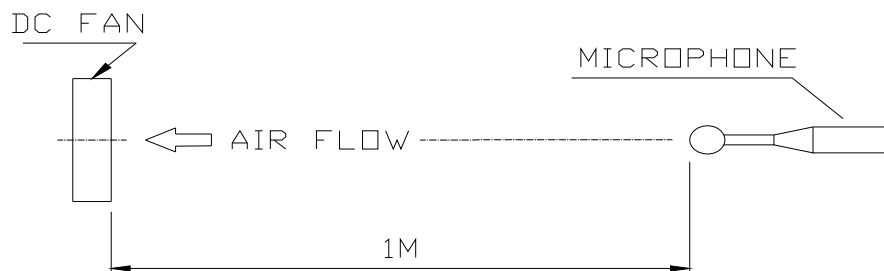
PART NO:

DELTA MODEL: PFB0412EN-E

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, WHEN ROTOR LOCKED AND FIXED. AUTO RESTART AFTER 10 SECONDS(MAX.)

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 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----- 51 GRAMS(REF.)

4. ENVIRONMENTAL:

- 4-1. OPERATING TEMPERATURE----- -10 TO +80 DEGREE C
- 4-2. STORAGE TEMPERATURE----- -40 TO +80 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.

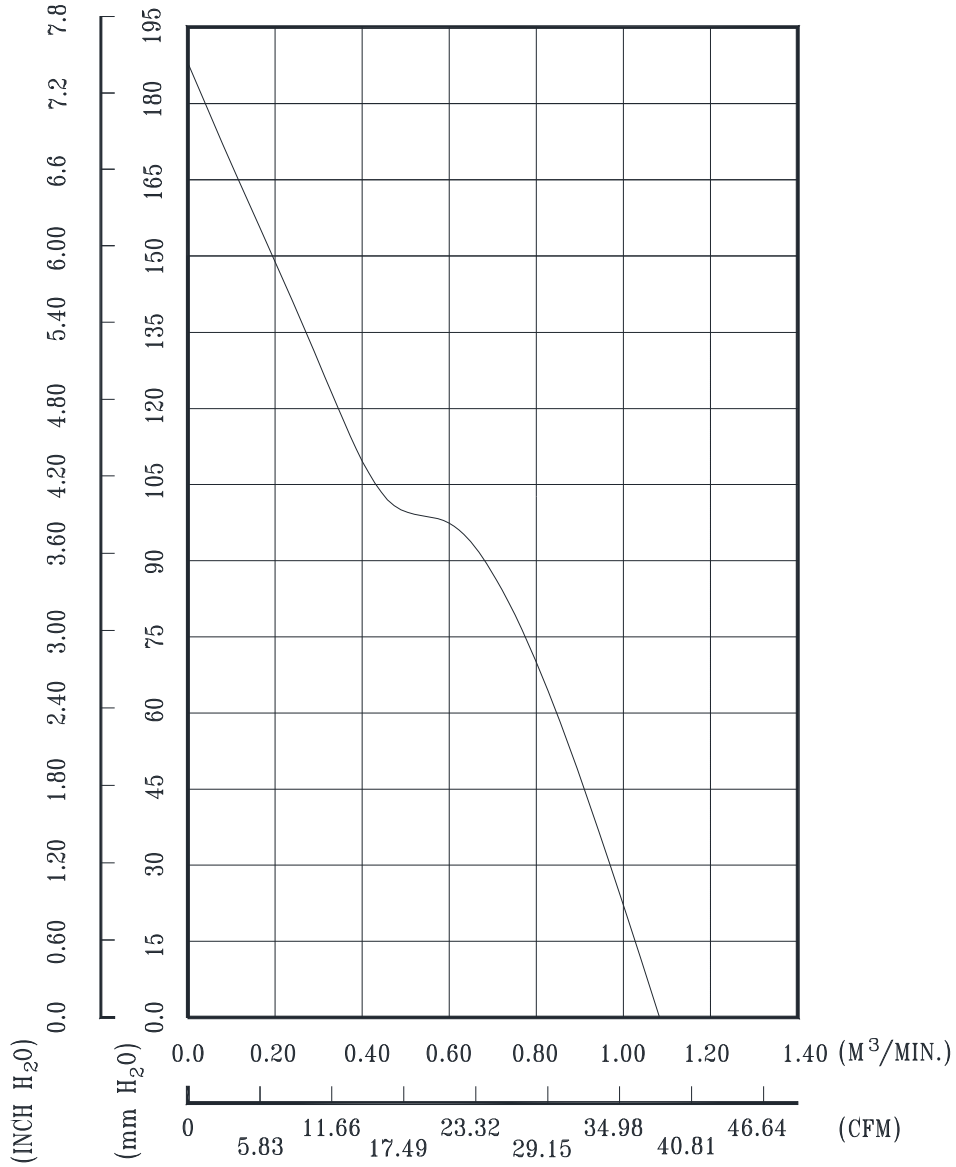
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:



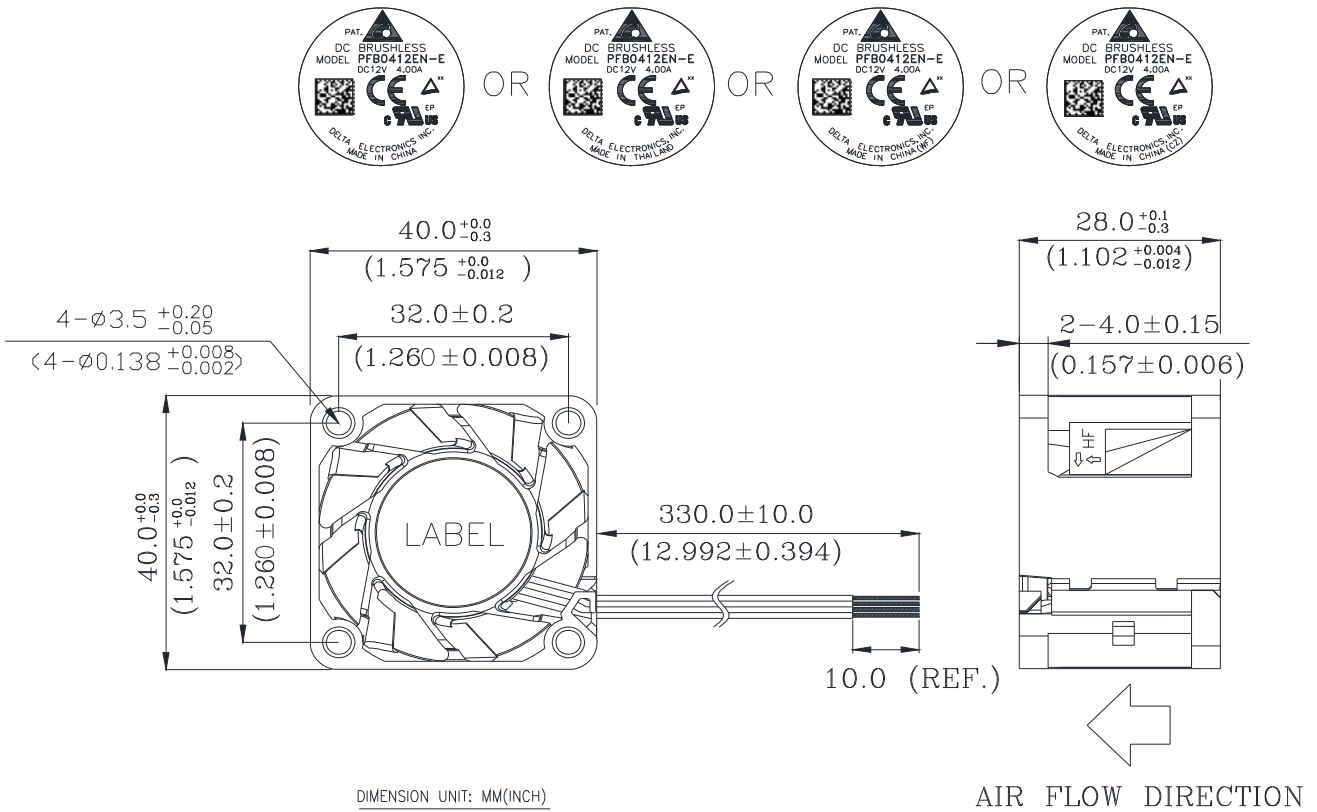
*TEST CONDITION: INPUT VOLTAGE-----OPERATION VOLTAGE
TEMPERATURE-----ROOM TEMPERATURE
HUMIDITY-----65%RH

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9. DIMENSION DRAWING:

LABEL:



NOTES:

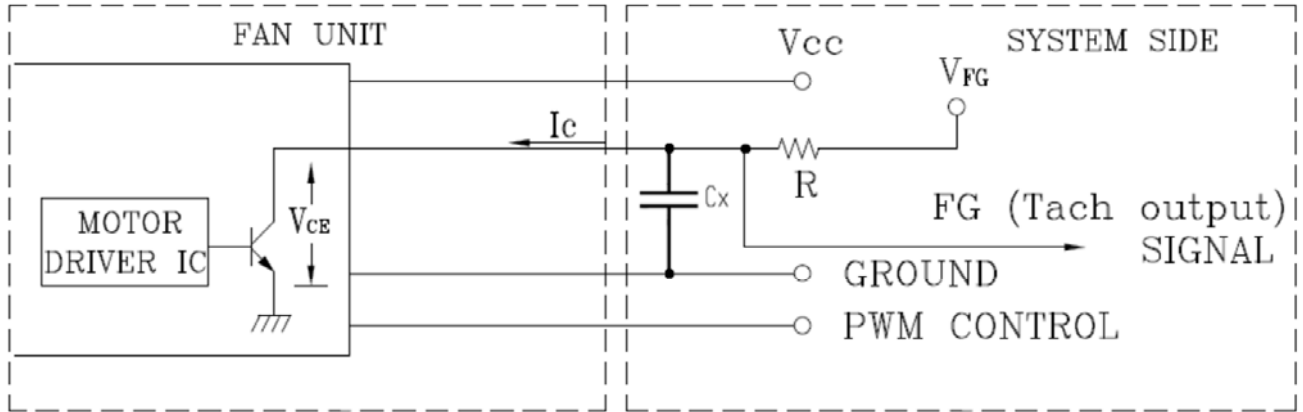
- LEAD WIRE: UL 10368 AWG #26
BLACK WIRE -----(-)
RED WIRE -----(+)
BLUE WIRE -----(PWM)
YELLOW WIRE -----(F00)
- THIS PRODUCT IS RoHS COMPLIANT .

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FREQUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



GENERAL CONDITION: V_{FG} is 3.3V, R is 8.2Kohm, and C_x is 4nF.

CAUTION:

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

2. SPECIFICATION:

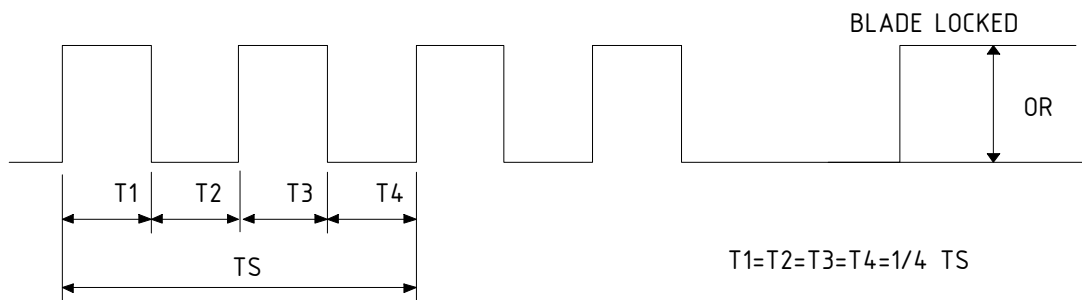
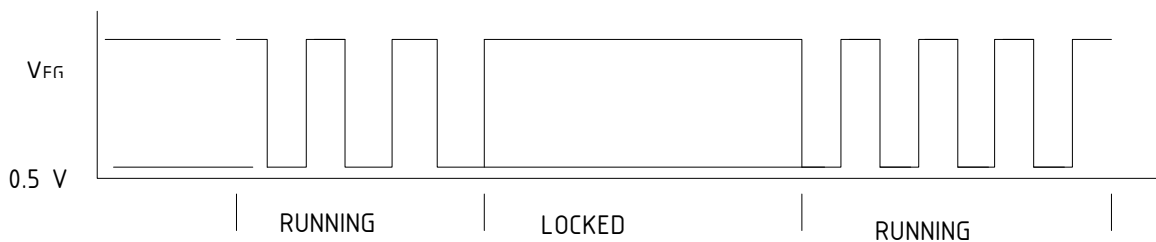
$V_{FG} = 13.2V$ MAX.

$I_c = 5mA$ MAX.

$V_{CE} = 0.5V$ MAX.

$R \geq V_{FG} / I_c$

3. FREQUENCY GENERATOR WAVEFORM:



$N = R.P.M$

$TS = 60/N(SEC)$

*VOLTAGE LEVEL AFTER BLADE LOCKED

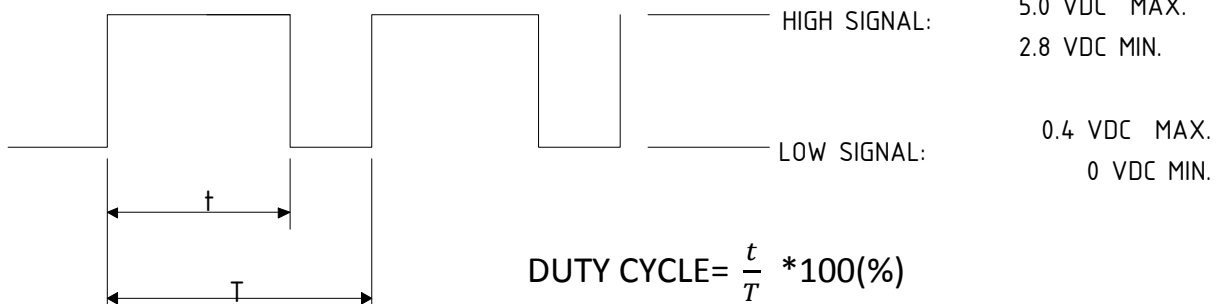
*4 POLES

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12. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~5 VDC



*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 STOP.

*WITH CONTROL SIGNAL LEAD DISCONNECTED, THE FAN WILL SPIN AT MAXIMUM SPEED.

*AT 25°C, 25KHZ, 12V, 10% DUTY CYCLE, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

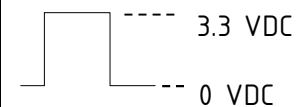
13. SPEED VS PWM CONTROL SIGNAL:

(AT 25°C, RATED 12V & PWM SIGNAL AS FOLLOW)

*PWM SIGNAL

PWM FREQUENCY = 25KHz

DUTY CYCLE (%)	SPEED R.P.M.	CURRENT (A) TYP.
100	32500±10%	2.6
0	0	0.02



14. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:

