



## SPECIFICATION FOR APPROVAL

Customer : STD

Description : DC FAN

Customer Part No. \_\_\_\_\_

REV. : \_\_\_\_\_

Delta Model No. : EFB0424VHD-CP0

REV. : 02

Sample Issue No. : \_\_\_\_\_

Sample Issue Date : AUG.26 2020

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

APPROVED BY:

DATE :

DELTA ELECTRONICS, INC.  
TAOYUAN PLANT  
252, SHANGYING ROAD, GUISHAN INDUSTRIAL ZONE,  
TAOYUAN CITY 33341, TAIWAN  
TEL:886-(0)3-3591968  
FAX:886-(0)3-3591991

DELTA ELECTRONICS, INC.  
252, SHANGYING ROAD, GUISHAN INDUSTRIAL ZONE,  
TAOYUAN CITY 33341, TAIWAN

TEL : 886-(0)3-3591968  
FAX : 886-(0)3-3591991

## STATEMENT OF DEVIATION

NONE

DESCRIPTION:

DELTA ELECTRONICS, INC.  
252, SHANGYING ROAD, GUISHAN INDUSTRIAL ZONE,  
TAOYUAN CITY 33341, TAIWAN

TEL : 886-(0)3-3591968  
FAX : 886-(0)3-3591991

## **SPECIFICATION FOR APPROVAL**

Customer : STD

Description : DC FAN

Customer P/N :

rev. :

Delta model no. : EFB0424VHD-CP0

Delta Safety Model No.: EFB0424VHD-C

Sample revision. : 02

Issue no.:

Sample issue date : AUG.26 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	24.0 V
OPERATION VOLTAGE RANGE	14.0 - 26.5 VDC
INPUT CURRENT(AVG.) (AT RATED VOLTAGE)	0.06(MAX. 0.08) A SAFETY CURRENT ON LABEL : 0.12A
INPUT POWER(AVG.) (AT RATED VOLTAGE)	1.44 (MAX. 1.92) W
SPEED (AT RATED VOLTAGE)	9000 R.P.M.±15%
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	0.266 (MIN. 0.226) M <sup>3</sup> /MIN. 9.398 (MIN. 7.988) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	9.346 (MIN. 6.752) mmH <sub>2</sub> O 0.368 (MIN. 0.265) inchH <sub>2</sub> O
ACOUSTICAL NOISE (AVG.)	37.3(MAX. 41.3) 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)

---

PART NO:

---

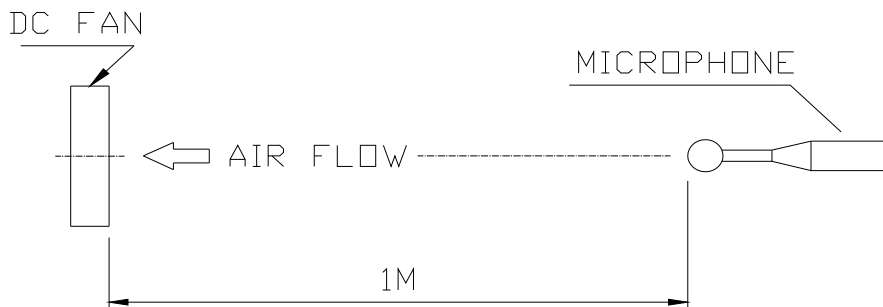
DELTA MODEL: EFB0424VHD-CP0

---

LIFE EXPECTANCE (L10) (AT LABEL VOLTAGE)	70,000 HOURS CONTINUOUS OPERATION AT 40 ° C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM NAME PLAT SIDE
LOCK 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.

---

PART NO:

---

DELTA MODEL: EFB0424VHD-CP0

---

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----- 33.0 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.

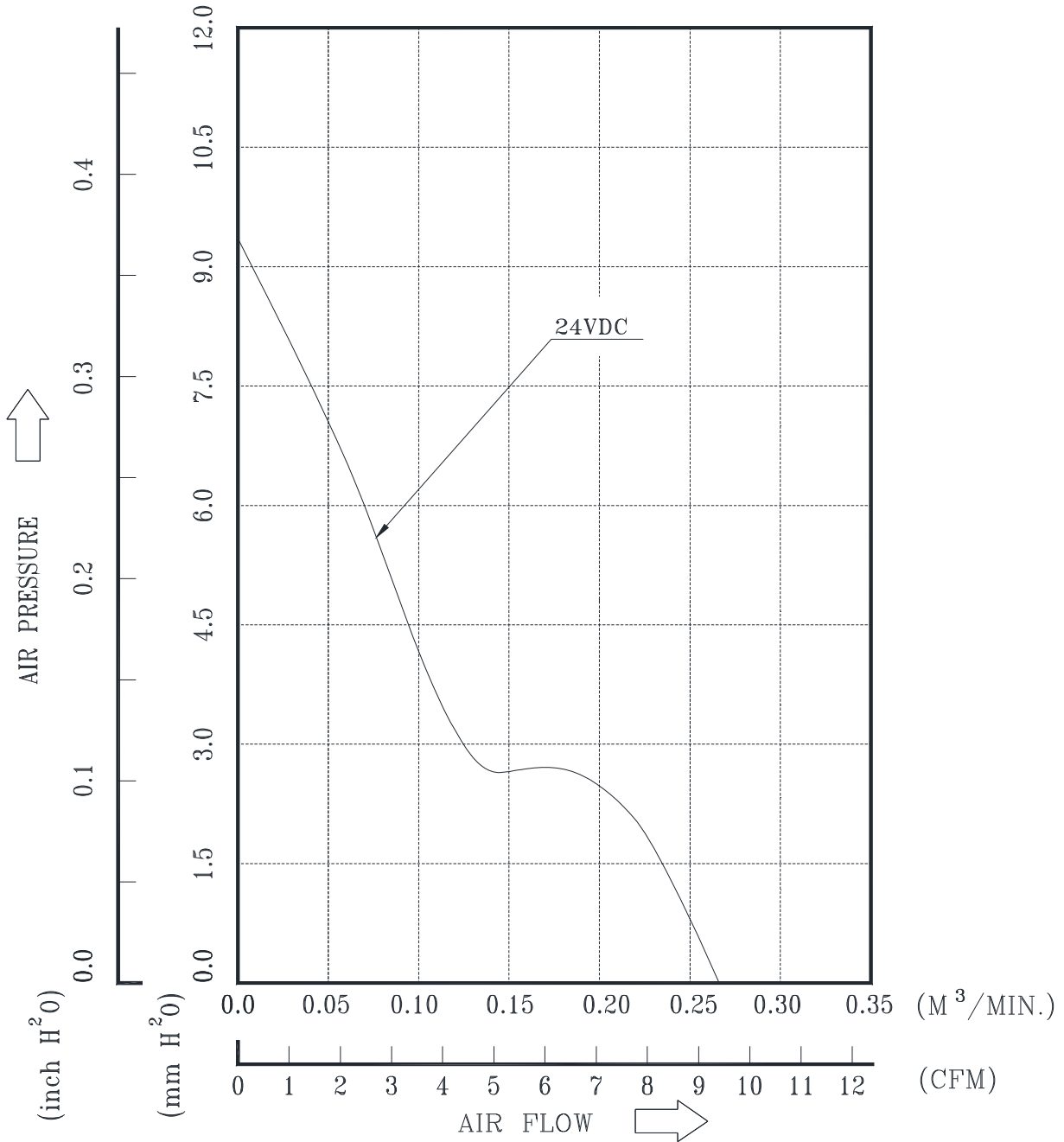
7. PRODUCTION LOCATION

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

PART NO:

DELTA MODEL: EFB0424VHD-CP0

8. P & Q CURVE:



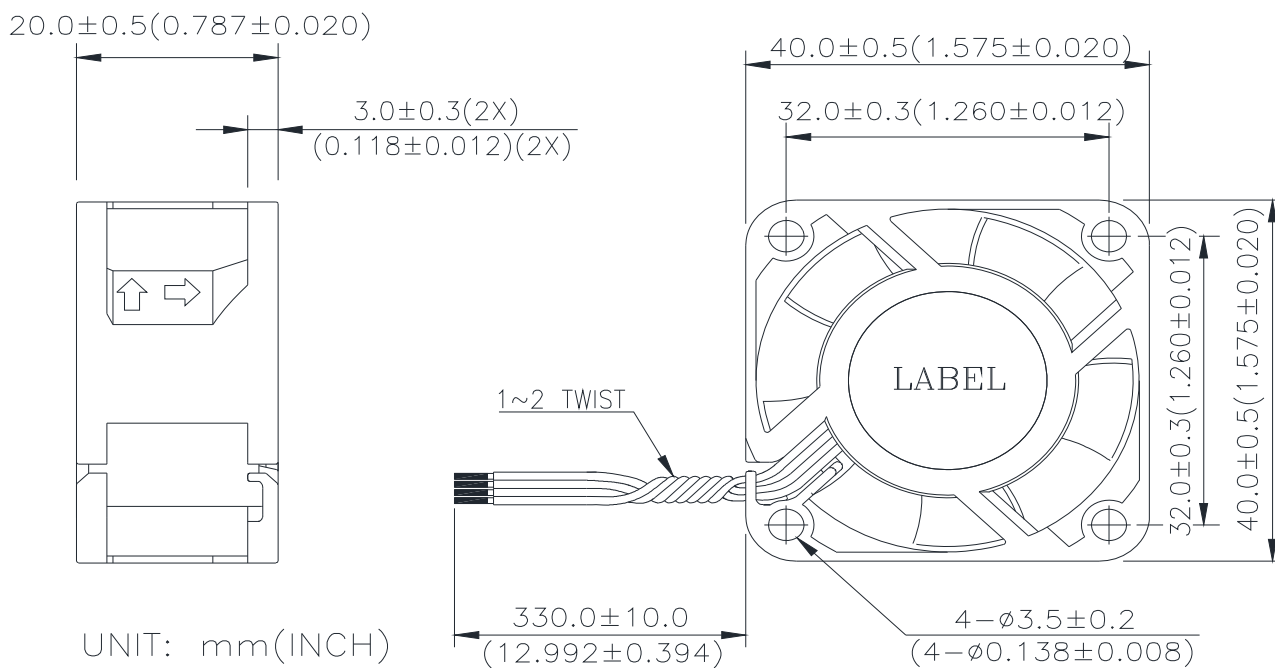
\*TEST CONDITION: INPUT VOLTAGE-----OPERATION VOLTAGE  
TEMPERATURE-----ROOM TEMPERATURE  
HUMIDITY-----65%RH

PART NO:

DELTA MODEL: EFB0424VHD-CP0

9. DIMENSION DRAWING:

LABEL:



NOTES:

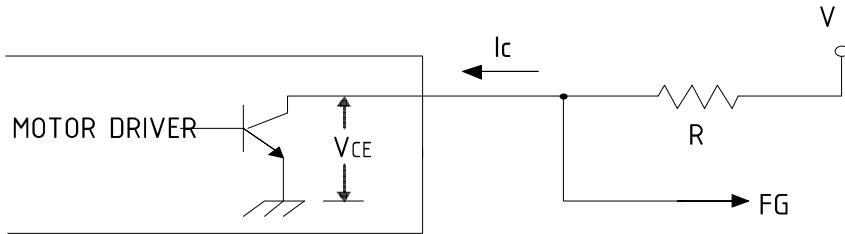
1. LEAD WIRE: UL1061 AWG#26  
RED WIRE----(+)  
BLACK WIRE----(-)  
BLUE WIRE----(F00)  
YELLOW WIRE----(PWM)
2. THIS PRODUCT IS ROHS COMPLIANT.

PART NO:

DELTA MODEL: EFB0424VHD-CP0

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:

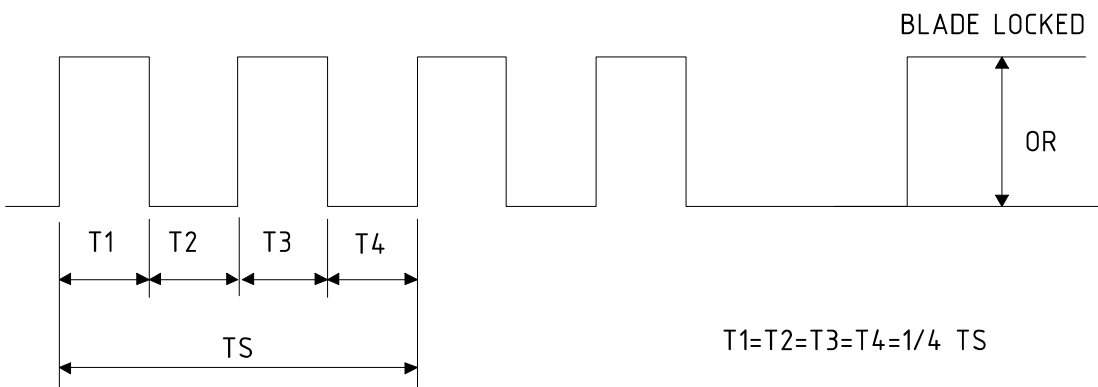
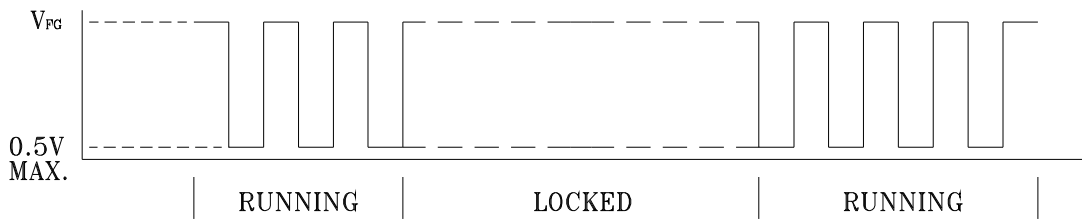
$V_{FG} = 5.0$  TYP.( $V_{CC}$  MAX.)

$V_{CE} = 0.5V$  MAX.

$I_c = 5mA$  MAX.

$R \geq V_{FG} / I_c$

10-3. FREQUENCY GENERATOR WAVEFORM:



$N=R.P.M$

$TS=60/N(SEC)$

\*VOLTAGE LEVEL AFTER BLADE LOCKED

\*4 POLES



---

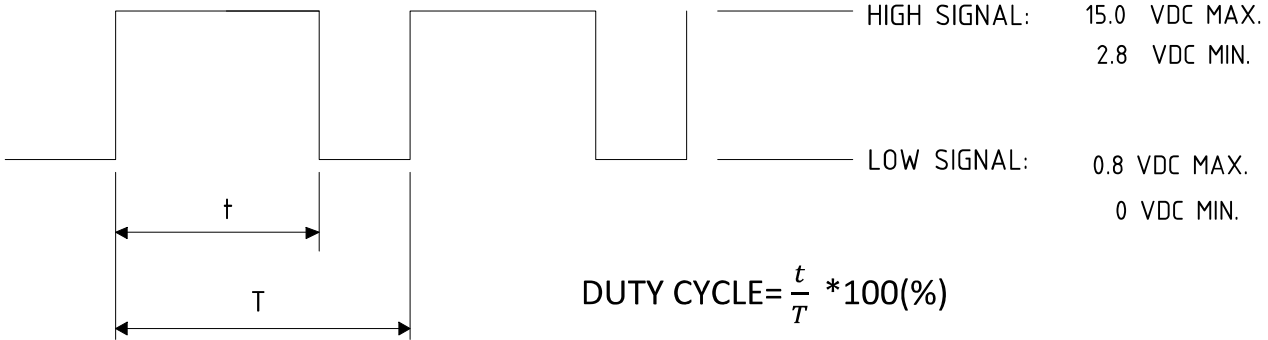
PART NO:

---

DELTA MODEL: EFB0424VHD-CP0

---

11.PWM CONTROL SIGNAL:

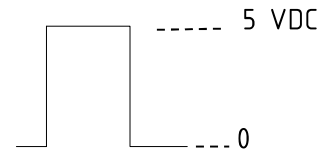


- \* THE OPERATING FREQUENCY IS 25KHz.
- \* AT 100% DUTY CYCLE, THE FAN WILL SPIN AT MAXIMUM SPEED.
- \* AT 0% DUTY CYCLE, THE FAN WILL STOP SPINNING.
- \* THE FAN WILL SPIN AT MAXIMUM SPEED WHILE CONTROL SIGNAL LEAD IS DISCONNECTED.
- \* THE FAN WILL BE ABLE TO START FROM A DEAD STOP WHILE PWM SET AT 25KHZ 20% DUTY CYCLE & RATED VOLTAGE .

12. SPEED VS PWM CONTROL SIGNAL:  
(AT 25°C, RATED VOLTAGE & PWM SIGNAL AS FOLLOW)

\*PWM SIGNAL  
PWM FREQUENCY = 25KHz

DUTY CYCLE (%)	SPEED (R.P.M.)	CURRENT (A) (AVG.)
100	9000±15%	0.06(MAX. 0.08)
0	0	0.01(MAX. 0.02)



PART NO:

DELTA MODEL: EFB0424VHD-CP0

### 13. FAN CABLE ADDITIONAL PROCESS OUTSIDE DELTA

#### 13-1. HANDLING :

13-1-1. DO NOT PRESS ROTOR OR PULL CABLE IN ANY PROCESS.



13-1-2. WEARING ELECTROSTATIC GLOVES BEFORE WORKING, MAKE SURE HOUSING ASSAMBLING MECHINE, WORKING TABLE WITH ELECTROSTATIC PROTECTION.

13-1-3. DO NOT WEAR OR DROP THE FAN DURING ALL PROCESS, PLEASE SCRAPE DROOPED FAN TO AVOID BEARING DAMAGE.

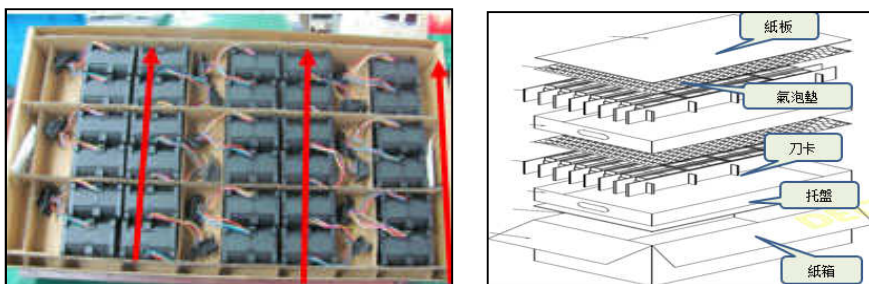
#### 13-2. TESTING :

13-2-1. MAKE SURE FAN SPEED AND FUNCTION WORKS WELL AFTER ASSAMBLY.



#### 13-3. PACKING:

13-3-1. BE SURE OF FAN DERECTION AND HOUSING POSITION, CAN'T INTERFER CARTON OR POTTION OR OTHER MATERIAL.



13-3-2. MAKE SURE DESICCANT, QUANTITY AND P/N IS CORRECT BEFORE PACKING.

