



## SPECIFICATION FOR APPROVAL

Customer : \_\_\_\_\_  
Description : DC FAN \_\_\_\_\_  
Customer Part No. : \_\_\_\_\_ REV. : \_\_\_\_\_  
Delta Model No. : EFB0612HHAF99 \_\_\_\_\_ REV. : 01 \_\_\_\_\_  
Sample Issue No. : \_\_\_\_\_  
Sample Issue Date : MAR.13 2019 \_\_\_\_\_

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, SHANG YING ROAD, KUEI SAN INDUSTRIAL ZONE  
TAOYUAN SHIEN, TAIWAN, R.O.C.  
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Delta Electronics, Inc.  
No.252, Shanying Rd., Guishan Dist.,  
Taoyuan City 333, Taiwan (R.O.C.)

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

## STATEMENT OF DEVIATION

NONE

DESCRIPTION:

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No.252, Shanying Rd., Guishan Dist.,  
Taoyuan City 333, Taiwan (R.O.C.)

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## Specification For Approval

Customer : \_\_\_\_\_

Description : DC FAN  
\_\_\_\_\_

Customer P/N : \_\_\_\_\_

rev. : \_\_\_\_\_

Delta model no. : EFB0612HHAF99  
\_\_\_\_\_

Delta Safety Model No.: EFB0612HHA  
\_\_\_\_\_

Sample revision. : 01  
\_\_\_\_\_

Issue no.: \_\_\_\_\_

Sample issue date : MAR.13 2019  
\_\_\_\_\_

Quanti EFB  
\_\_\_\_\_

### 1. SCOPE:

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

### 2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	12 V
OPERATION VOLTAGE	5.0-13.2 VDC VDC
INPUT CURRENT(AVG.) # (MEAN CURRENT)	0.20 (MAX. 0.25) A SAFETY CURRENT ON LABEL :0.25A
INPUT POWER(AVG.)	2.40 (MAX. 3.00) W
SPEED	4800 ± 10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE) (WITH CUSTOMER'S COVER)	0.426 (MIN. 0.383) M <sup>3</sup> /MIN. 15.03 (MIN. 13.53) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW) (WITH CUSTOMER'S COVER)	3.272 (MIN. 2.650) mmH <sub>2</sub> O 0.129 (MIN. 0.104) inchH <sub>2</sub> O
ACOUSTICAL NOISE (AVG.) (FAN ONLY)	39.0 (MAX. 43.0) 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)

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

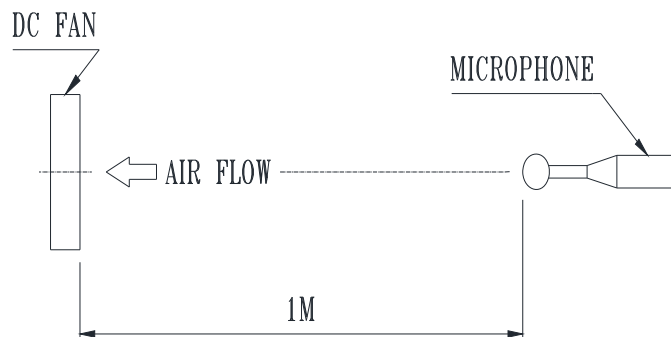
PART NO:

DELTA MODEL: EFB0612HHAF99

LIFE EXPECTANCE (L10) (AT LABEL VOLTAGE)	50,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	COUNTERCLOCKWISE VIEW FROM NAME PLATE SIDE.
LOCK ROTOR SHUT DOWN	THE CURRENT WILL SHUT DOWN, WHEN ROTOR LOCKED AND FIXED.

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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PART NO:

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DELTA MODEL: EFB0612HHAF99

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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----- 17.0 GRAMS(REF.)

4. ENVIRONMENTAL:

- 4-1. OPERATING TEMPERATURE----- -10 TO +60 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.

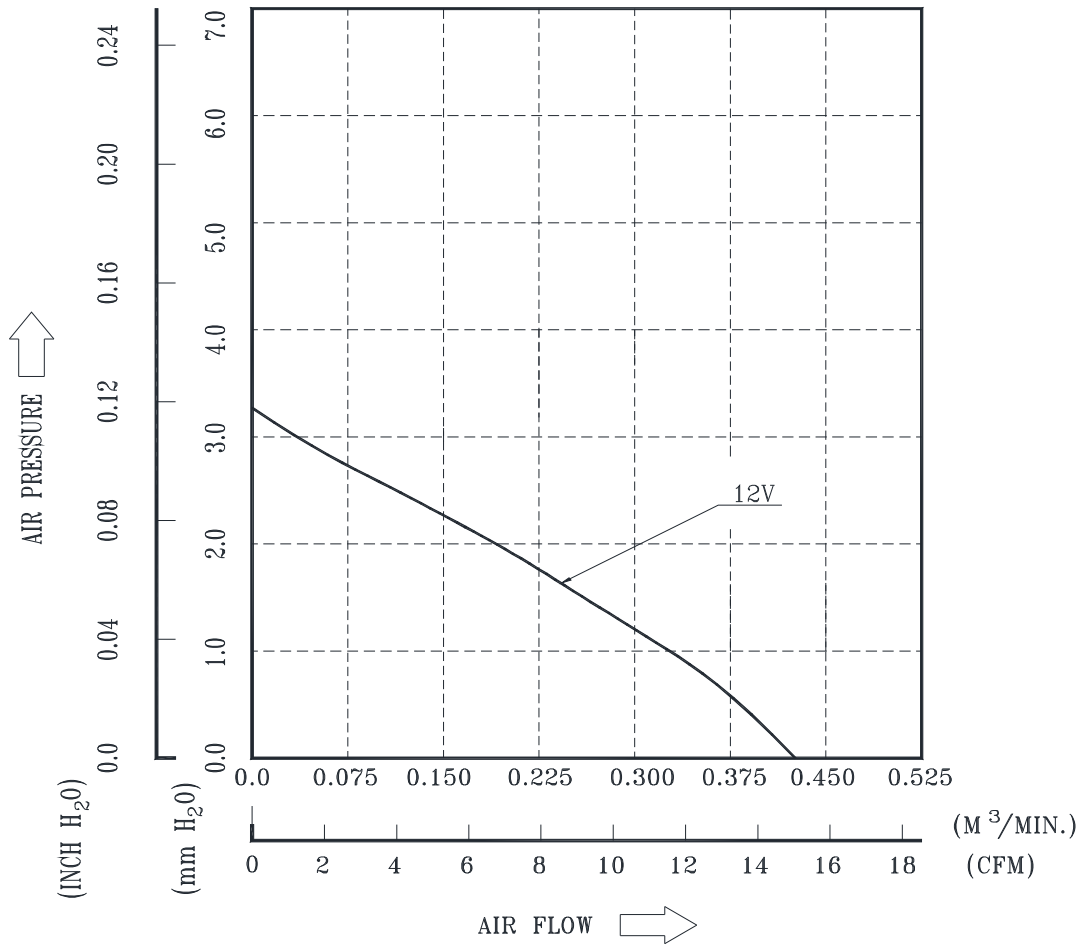
7. PRODUCTION LOCATION

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

PART NO:

DELTA MODEL: EFB0612HHAF99

8. P & Q CURVE:



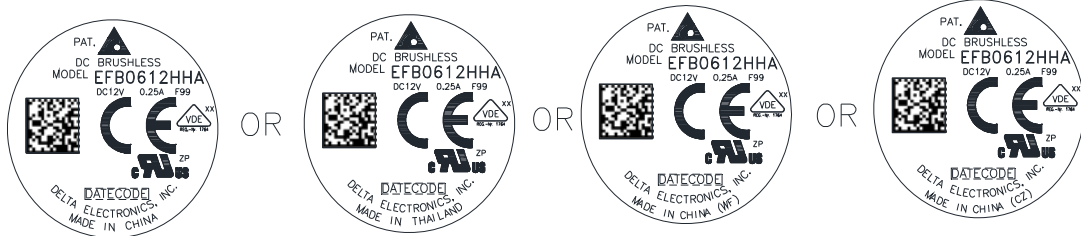
\*TEST CONDITION: INPUT VOLTAGE-----OPERATION VOLTAGE  
TEMPERATURE-----ROOM TEMPERATURE  
HUMIDITY-----65%RH

PART NO:

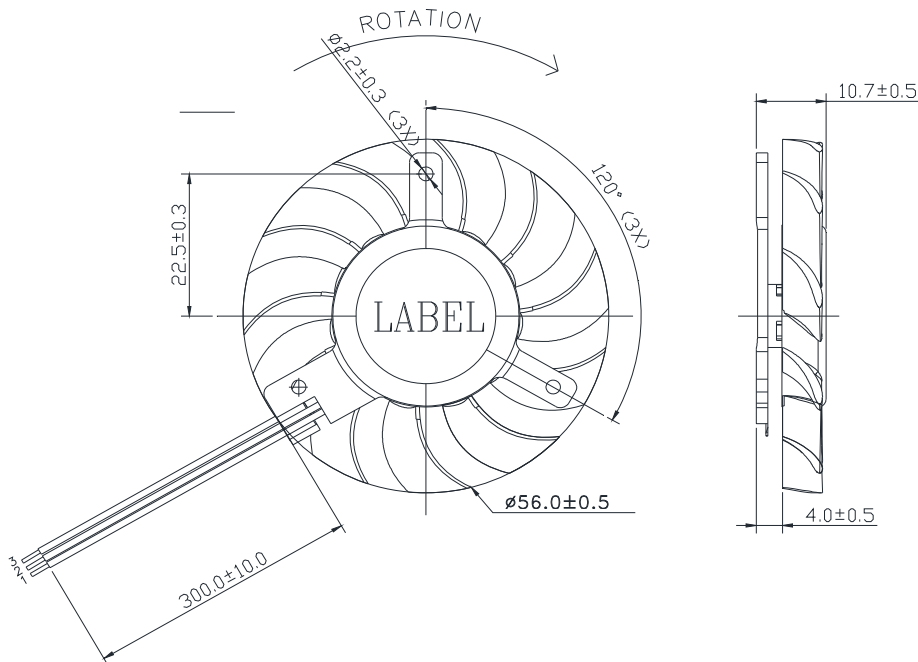
DELTA MODEL: EFB0612HHAF99

9. DIMENSION DRAWING:

LABEL:



DRAWING:



NOTES:

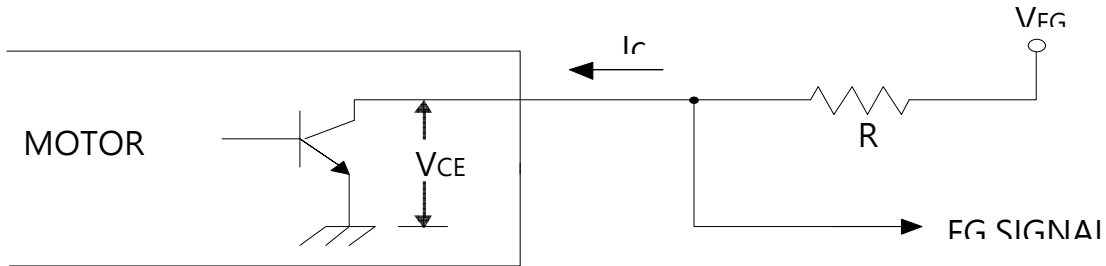
1. LEAD WIRE: UL:10368 AWG#26  
PIN 1: RED WIRE ----- (+)  
PIN 2: BLACK WIRE ----- (-)  
PIN 3: BLUE WIRE ----- (F00)
2. UNIT : mm
3. THIS PRODUCT IS RoHS COMPLIANT.
4. DELTA'S RESTRICTIONS ON HALOGEN APPLY ONLY TO BROMINATED AND CHLORINATED COMPOUNDS. NO OTHER HALOGEN IS RESTRICTED. SUBSTANCES RESTRICTIONS FOR HALOGEN-FREE (INCLUDE FAN PLASTIC PARTS, PWB BOARD, IC, ELECTRICAL MATERIALS & CABLE ASSY),
  - a. BROMINE (Br) < 900 PPM,
  - b. CHLORINE (Cl) < 900 PPM
  - c. (Br) + (Cl) < 1500 PPM.

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10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



CAUTION:

THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM "+" LEAD WIRE & "-" LEAD WIRE.

10-2. SPECIFICATION:

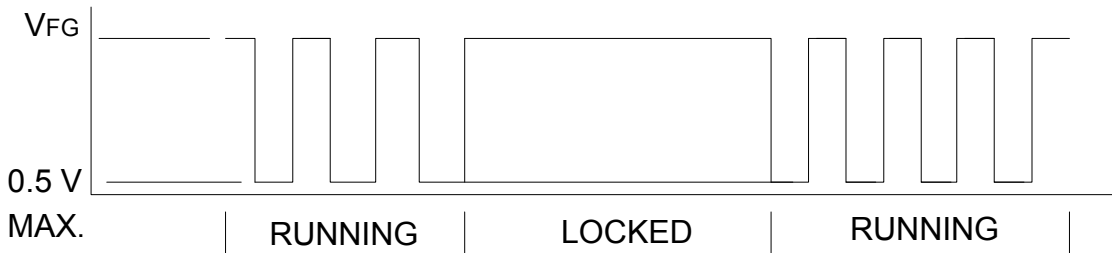
$V_{CE(sat)} = 0.5V \text{ MAX.}$

$V_{FG} = 5.0 \text{ VDC TYP. (13.2V MAX.)}$

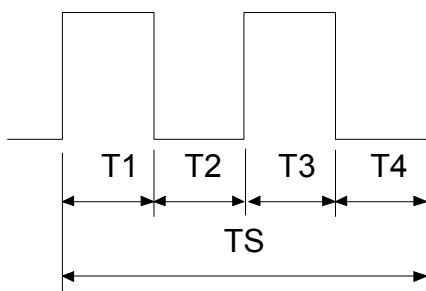
$I_c = 5mA \text{ MAX.}$

$R \geq V_{FG} / I_c$

10-3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



BLADE LOCKED

OR

$T1=T2=T3=T4=1/4$

$N=R.P.M$

$TS=60/N(SEC)$

\*VOLTAGE LEVEL AFTER BLADE LOCKED

\*4 POLES