



## SPECIFICATION FOR APPROVAL

Customer : STD

Description : DC FAN

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

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

Delta Model No. : QFR0824UHP0

REV. : 00

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

Sample Issue Date : DEC .02 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, SHANGYING ROAD, GUIZHAN INDUSTRIAL ZONE,  
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## STATEMENT OF DEVIATION

NONE

DESCRIPTION:

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## Specification For Approval

Customer : STD

Description : DC FAN

Customer P/N :

rev. :

Delta model no. : QFR0824UHP0

Delta Safety Model No.: QFR0824UH

Sample revision. : 00

Issue no.:

Sample issue date : DEC .02 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	24V
OPERATION VOLTAGE RANGE	14 - 27.6 VDC
INPUT CURRENT(AVG.) (AT RATED VOLTAGE)	0.23 (MAX. 0.27) A SAFETY CURRENT ON LABEL : 0.44A
INPUT POWER(AVG.) (AT RATED VOLTAGE)	5.52 (MAX. 6.48) W
SPEED (AT RATED VOLTAGE)	5400±10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	1.854 (MIN. 1.669) M <sup>3</sup> /MIN. 65.55 (MIN. 58.99) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	12.40 (MIN. 10.05) mmH <sub>2</sub> O 0.488 (MIN. 0.395) inchH <sub>2</sub> O
ACOUSTICAL NOISE (AVG.)	50.0 (MAX. 54.0) 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)

(continued)

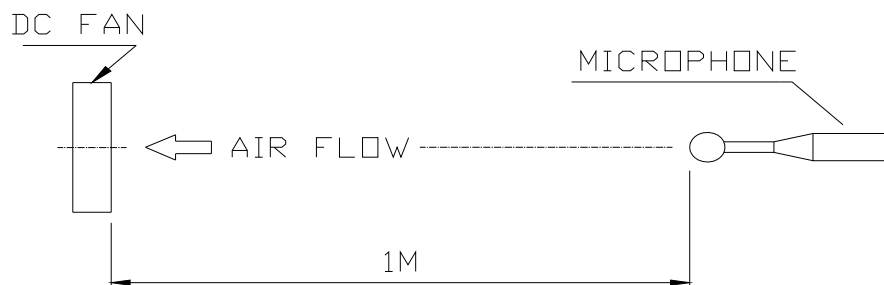
PART NO:

DELTA MODEL: QFR0824UHP0

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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PART NO:

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DELTA MODEL: QFR0824UHP0

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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----- 88 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.

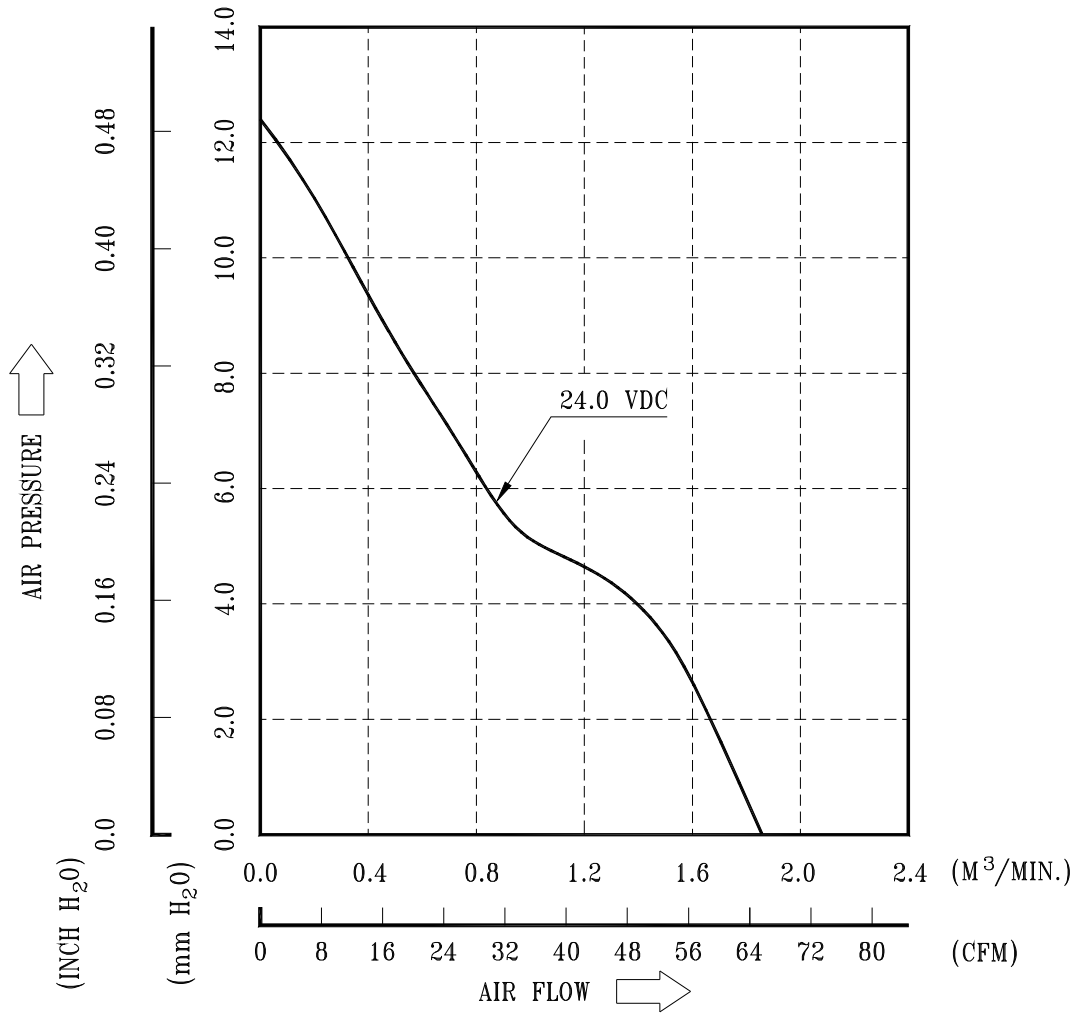
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:



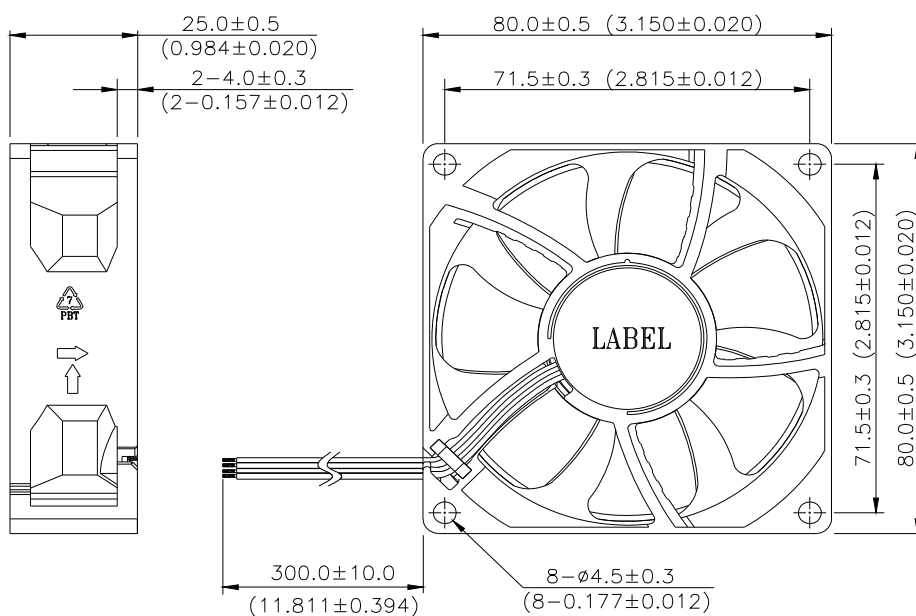
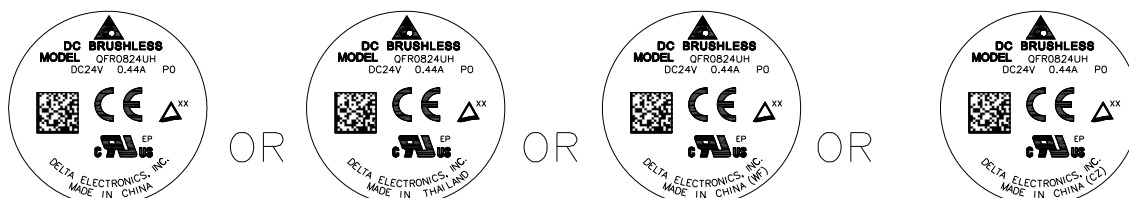
\*TEST CONDITION: INPUT VOLTAGE-----OPERATION VOLTAGE  
TEMPERATURE-----ROOM TEMPERATURE  
HUMIDITY-----65%RH

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9. DIMENSION DRAWING:

LABEL:



UNIT: MM(INCH)

NOTES:

1. THIS PRODUCT IS ROHS COMPLIANT.
2. CABLE WIRE: UL1007 AWG#28  
RED WIRE ----- (+)  
BLACK WIRE ----- (-)  
BLUE WIRE----- (F00)  
YELLOW WIRE ----- (PWM)

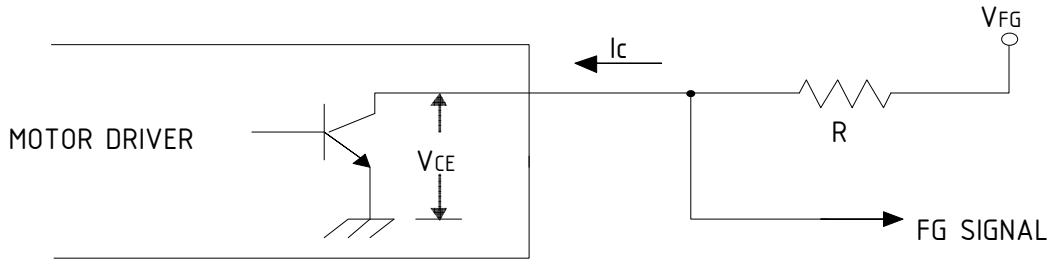


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10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



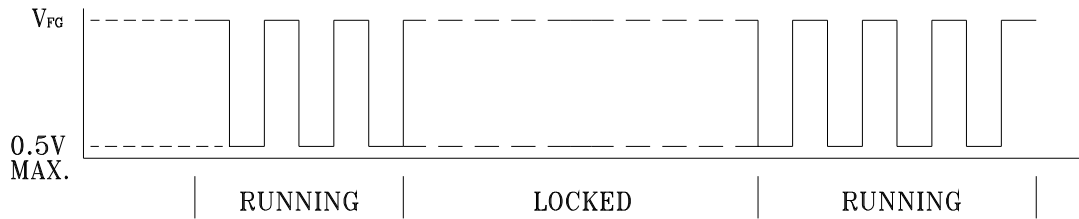
CAUTION:

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

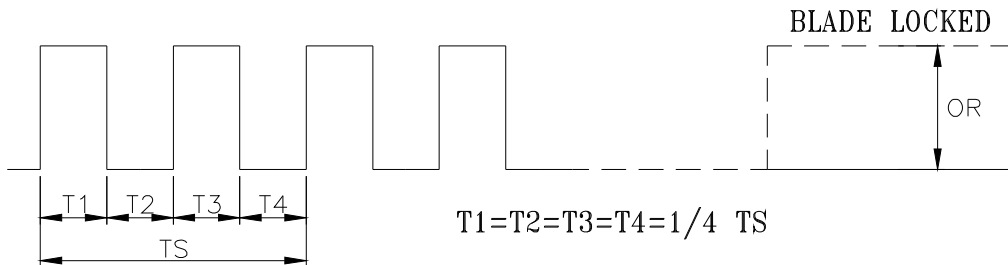
10-2. SPECIFICATION:

$V_{FG} = 5.0 \text{ TYP.}(V_{CC} \text{ MAX.})$      $I_c = 5\text{mA MAX.}$   
 $V_{CE} = 0.5\text{V MAX.}$                        $R \geq V_{FG} / I_c$

10-3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



$N = \text{R.P.M}$

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

\*VOLTAGE LEVEL AFTER BLADE LOCKED

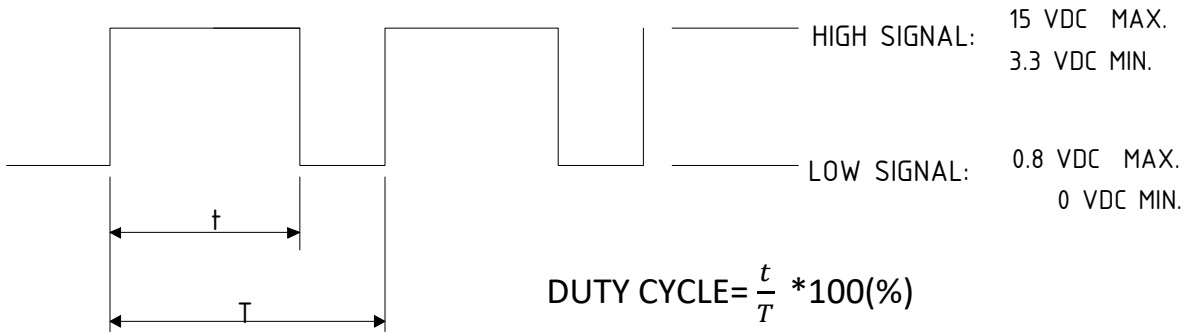
\*4 POLES

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11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~15 VDC



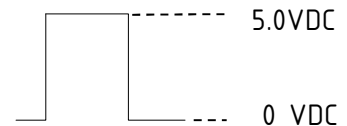
- \* THE OPERATING FREQUENCY IS 25KHz.
- \* AT 100% DUTY CYCLE, THE FAN WILL SPIN AT MAXIMUM SPEED.
- \* AT 0% DUTY CYCLE, THE FAN WILL STOP SPINNING.
- \* THE FAN WILL SPIN AT MAXIMUM SPEED WHILE CONTROL SIGNAL LEAD IS DISCONNECTED.
- \* THE FAN WILL BE ABLE TO START FROM A DEAD STOP WHILE PWM SET AT 25KHZ 10% 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	5400±10%	0.23
0	0	0.02



13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:

