



SPECIFICATION FOR APPROVAL

Customer : DPC

Description : DC FAN

Customer Part No. _____

REV. : _____

Delta Model No. : QFR1212GHEEVT

REV. : 03

Sample Issue No. : _____

Sample Issue Date : OCT.25 2019

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

APPROVED BY:

DATE :

DELTA ELECTRONICS, INC.

TAOYUAN PLANT

252, SHANG YING ROAD, GUIZHAN INDUSTRIAL ZONE

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STATEMENT OF DEVIATION

NONE

DESCRIPTION:

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Specification For Approval

Customer : DPC

Description : DC FAN

Customer P/N :

rev. :

Delta model no. : QFR1212GHEEVT

Delta Safety Model No.: QFR1212GHE

Sample revision. : 03

Issue no.:

Sample issue date : OCT.25 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	12.0 VDC
OPERATION VOLTAGE	10.8 - 12.6 VDC
INPUT CURRENT (AVG.)	1.80 (MAX. 2.70) A (SAFETY CURRENT ON LABEL : 2.70A)
INPUT POWER (AVG.)	21.60 (MAX. 32.40) W
SPEED	6000 ±10% RPM
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	5.957 (MIN. 5.361) M ³ /MIN. 210.38 (MIN. 189.34) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	29.179 (MIN. 23.635) mmH ₂ O 1.170 (MIN. 0.945) inchH ₂ O
ACOUSTICAL NOISE (AVG.)	64.0 (MAX 68.0) dB-A
INSULATION TYPE	UL: CLASS A
INSULATION STRENGT	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND LEAD WIRES)
DIELECTRIC STRENGTH	5mA MAX. AT 500 VAC 50/60 Hz ONE MINUTE.(BETWEEN FRAME AND LEAD WIRES.(USUALLY INSPECT AT 600V AC, 3SEC. 5mA.))

(continued)

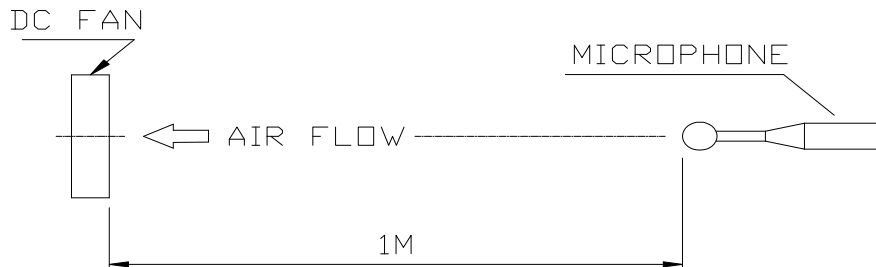
PART NO:

DELTA MODEL: QFR1212GHEEVT

LIFE EXPECTANCE(L10) (AT LABEL VOLTAGE)	70,000 HOURS CONTINUOUS OPERATION AT 40 ° C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM LABEL PLATE SIDE
LOCKED ROTOR PROTECTION	THE CURRENT WILL SHUT DOWN WHEN ROTOR LOCKED AND FIXED.
STARTING PROTECTION	START AT LOW SPEED, AFTER 10 SEC RUNNING AT FULL SPEED.

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----- 330 GRAMS (REF.)

4. ENVIRONMENTAL:

- 4-1. OPERATING TEMPERATURE----- -10 TO +60 DEGREE C
- 4-2. STORAGE TEMPERATURE----- -40 TO +70 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.

NOTE: TEST WITH PWM & FG/RD LEAD DISCONNECTED.

6. RE OZONE DEPLETING SUBSTANCES:

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

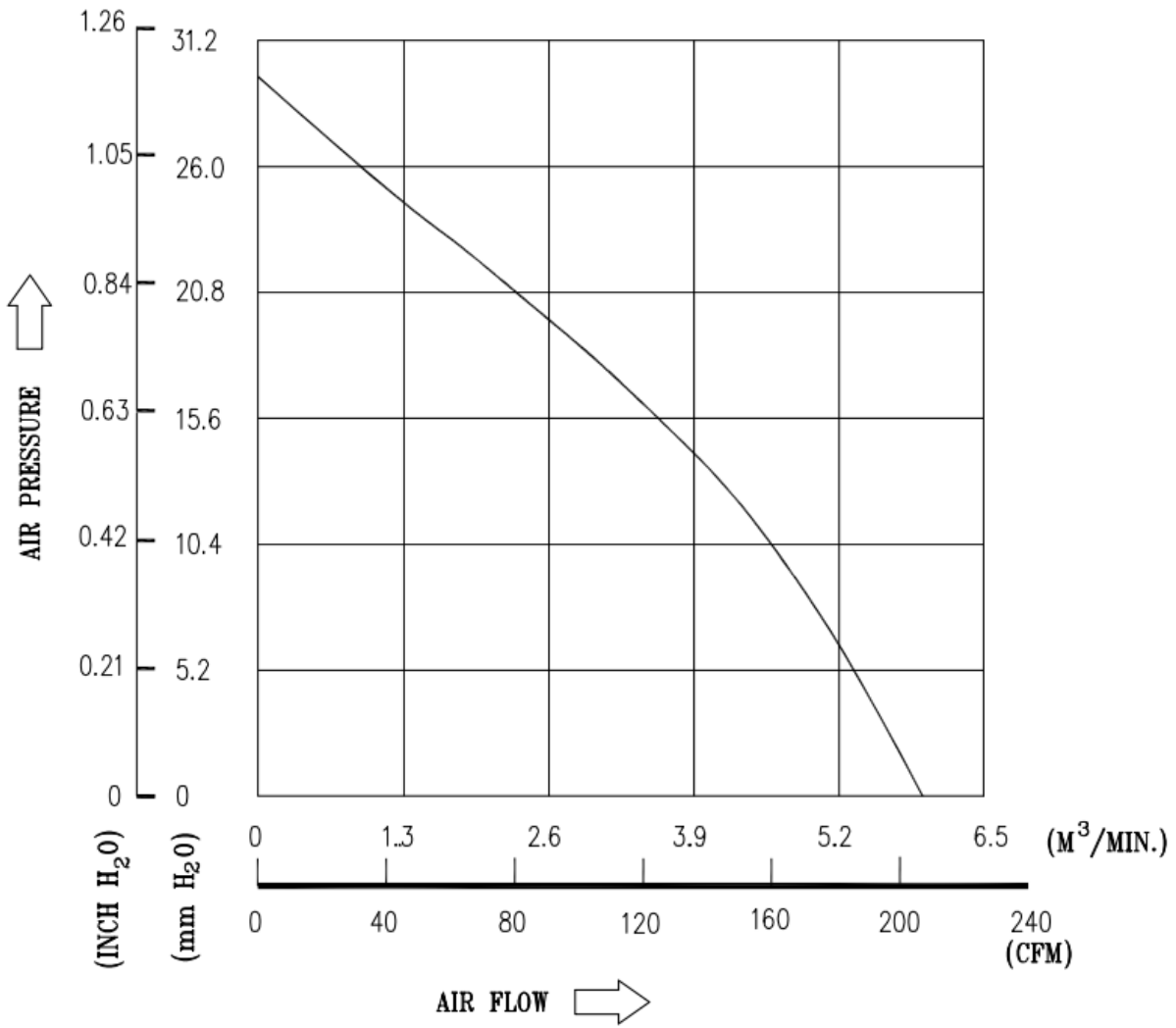
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:



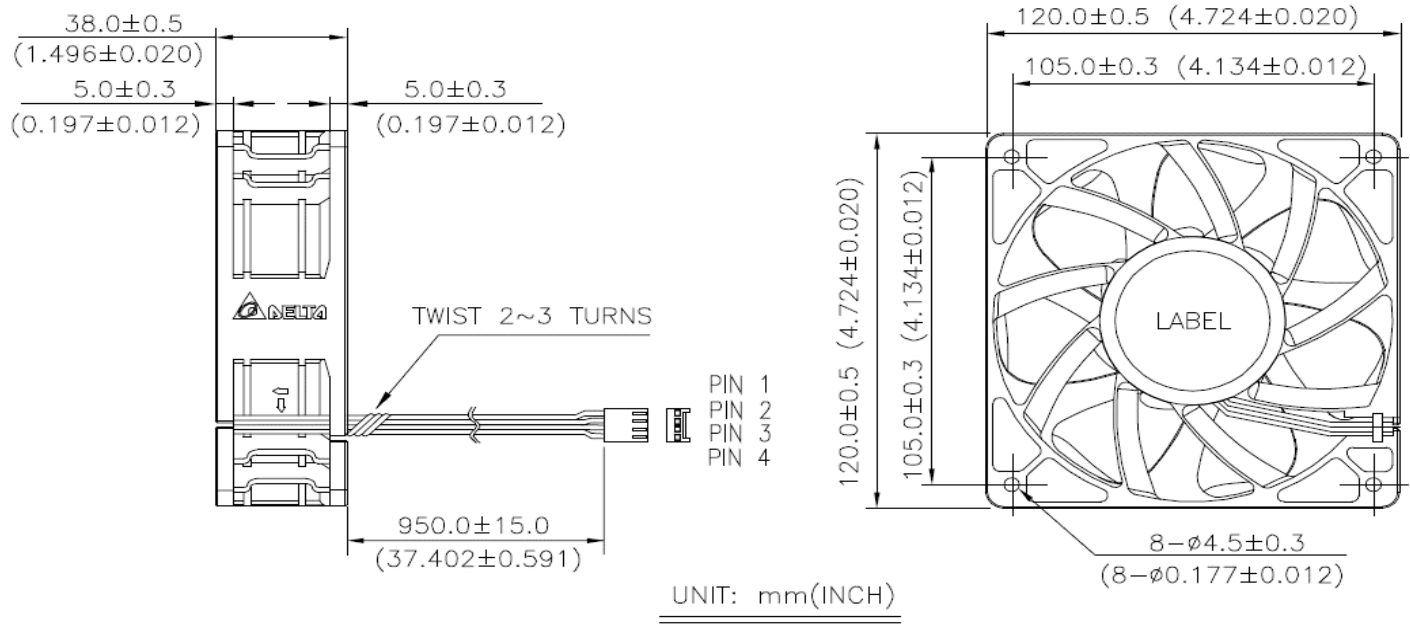
* TEST CONDITION: INPUT VOLTAGE ----- OPERATION VOLTAGE
TEMPERATURE ----- ROOM TEMPERATURE
HUMIDITY ----- 65%RH

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9.DIMENSION DRAWING:

LABEL:



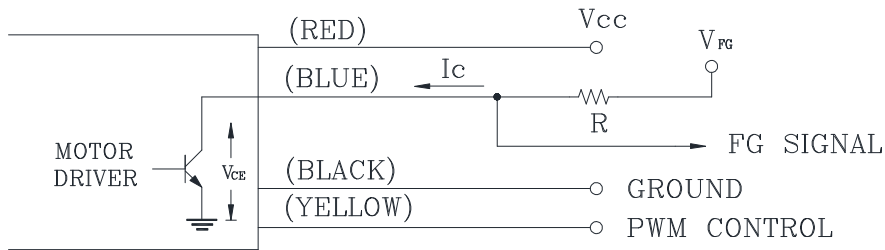
NOTES:

1. HOUSING: MOLEX 22-01-3047 ----- 1PCE
2. TERMINAL: MOLEX 08-50-0113 ----- 4PCS
3. LEAD WIRES :
 - PIN1: BLACK WIRE -----(-)-----UL 1061 AWG#24
 - PIN2: RED WIRE -----(+)------UL 1061 AWG#24
 - PIN3: BLUE WIRE -----(F00)-----UL 1061 AWG#26
 - PIN4: YELLOW WIRE -----(PWM)-----UL 1061 AWG#26
4. THIS PRODUCT IS RoHS COMPLIANT

PART NO:

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10. FREQUENCY GENERATOR (FG) SIGNAL:
10-1 OUTPUT CIRCUIT - OPEN COLLECTOR MODE



CAUTION:

THE LEAD WIRE OF FG SIGNAL MUST BE KEPT AWAY FROM THE LEAD WIRE OF POSITIVE OR NEGATIVE.

10-2. SPECIFICATION:

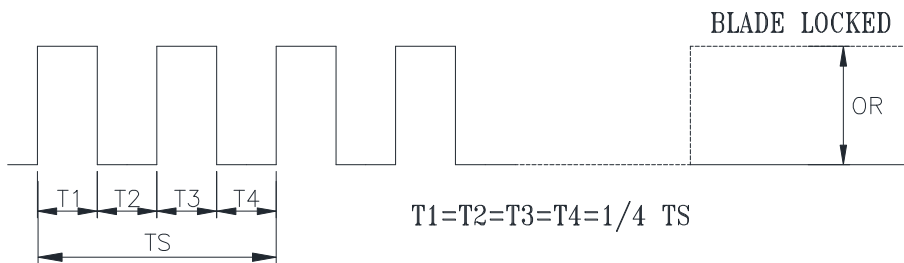
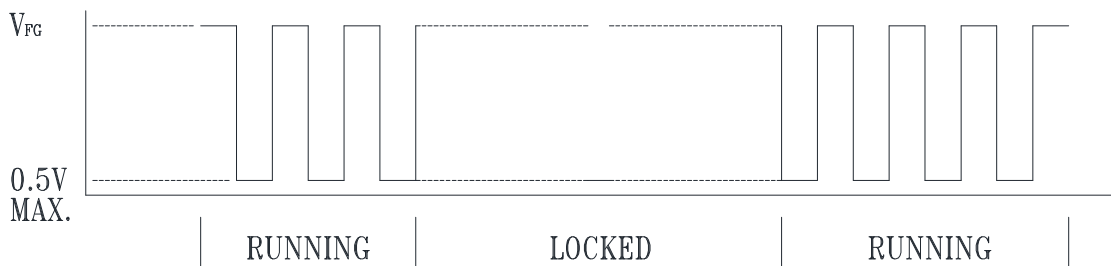
$$V_{FG} = 12.6V \text{ MAX.}$$

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

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

$$R \geq V_{FG} / I_c$$

10-3. ROTATION DETECT WAVEFORM:



$$N = \text{RPM}$$

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

*VOLTAGE LEVEL AFTER BLADE LOCKED

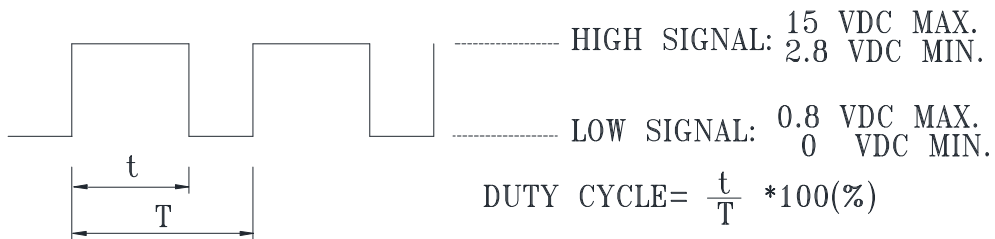
*4 POLES

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11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~15VDC



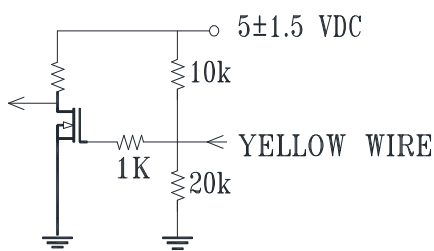
- * THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
- * AT 100% DUTY CYCLE, THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- * AT 0% DUTY CYCLE, THE ROTOR WILL SPIN AT MINIMUM SPEED.
- * WHEN CONTROL SIGNAL LEAD DISCONNECTED, THE FAN WILL SPIN AT MAXIMUM SPEED.
- * AT 25K HZ 0% DUTY CYCLE, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

12. SPEED VS PWM CONTROL SIGNAL:

(AT RATED VOLTAGE & PWM FREQUENCY=25KHz)

DUTY CYCLE (%)	SPEED RPM (REF.)	CURRENT (A) TYP
100	6000 ± 10%	1.80
0	700 ± 250	0.06

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:



13-1. THE FAN SPEED WILL DEFAULT TO MAXIMUM WHEN THE SPEED CONTROL INPUT IS LEFT UNCONNECTED.