



SPECIFICATION FOR APPROVAL

Customer. _____ DPC _____

Description. _____ DC FAN _____

Customer Part No. _____ REV. _____

Delta Model No. _____ QFR0812UHEYDW _____ REV. 01 _____

Sample Issue No. _____

Sample Issue Date. _____ FEB-16-2017 _____

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

APPROVED BY : _____

DATE: _____

Delta Electronics, Inc.

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Shi Jie Town, Dong Guan City.

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STATEMENT OF DEVIATION

NONE

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SPECIFICATION FOR APPROVAL

Customer: DPC

 Description: DC FAN

 Customer P/N: REV:

 Delta Model NO.: QFR0812UHEYDW Delta safety model NO.: QFR0812UHE

 Sample Rev: 01 Issue NO:

 Sample Issue Date: FEB-16-2017 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 VDC
OPERATION VOLTAGE	10.8 - 13.2 VDC
INPUT CURRENT	1.15 (1.38 MAX.) A SAFETY CURRENT ON LABEL: 1.7A
INPUT POWER	13.80 (16.56 MAX.) W
SPEED	9000 ± 10% RPM
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	2.979 (MIN. 2.681) M ³ /MIN 105.21 (MIN. 94.69) CFM
MAX.AIR PRESSURE (AT ZERO AIR FLOW)	33.91 (MIN. 27.47)mmH ₂ O 1.335 (MIN. 1.081)inchH ₂ O
ACOUSTICAL NOISE (AVG.)	60.0 (MAX 64.0) dB-A
INSULATION TYPE	UL: CLASS A

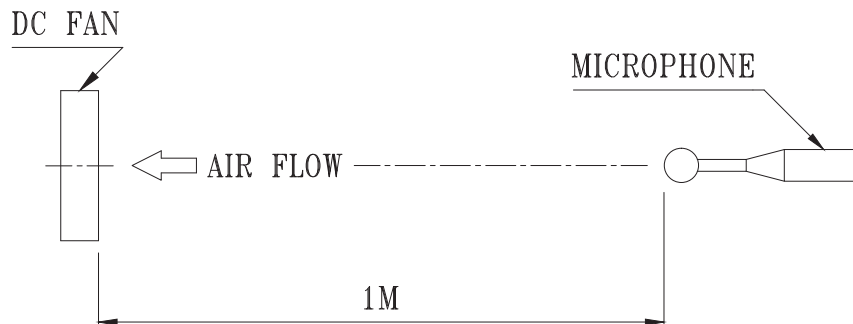
(continued)

PART NO:

DELTA MODEL: QFR0812UHEYDW

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)
LIFE EXPECTANCE (L10) (AT LABEL VOLTAGE)	L10 : 7 YEARS (61320 HOURS) L2 : 6 YEARS (52560 HOURS) ABOVE LIFE EXPECTANCE IS BASED ON 45 °C AND 60% MAX. ROTOR SPEED.
ROTATION	CLOCKWISE VIEW FROM NAME PLATE SIDE
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN, WHEN LOCKING ROTOR.

- 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 ----- 160 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

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.

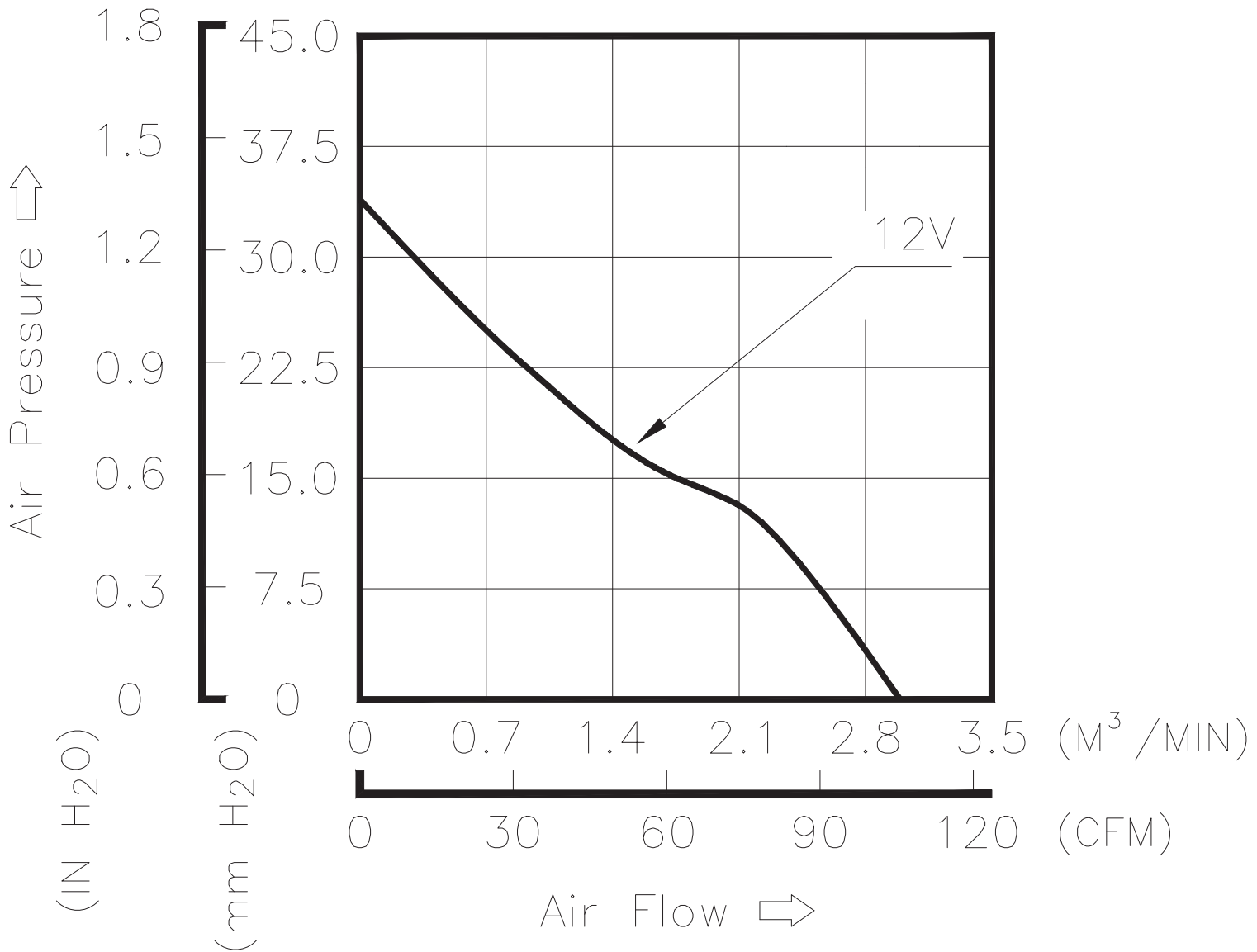
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:



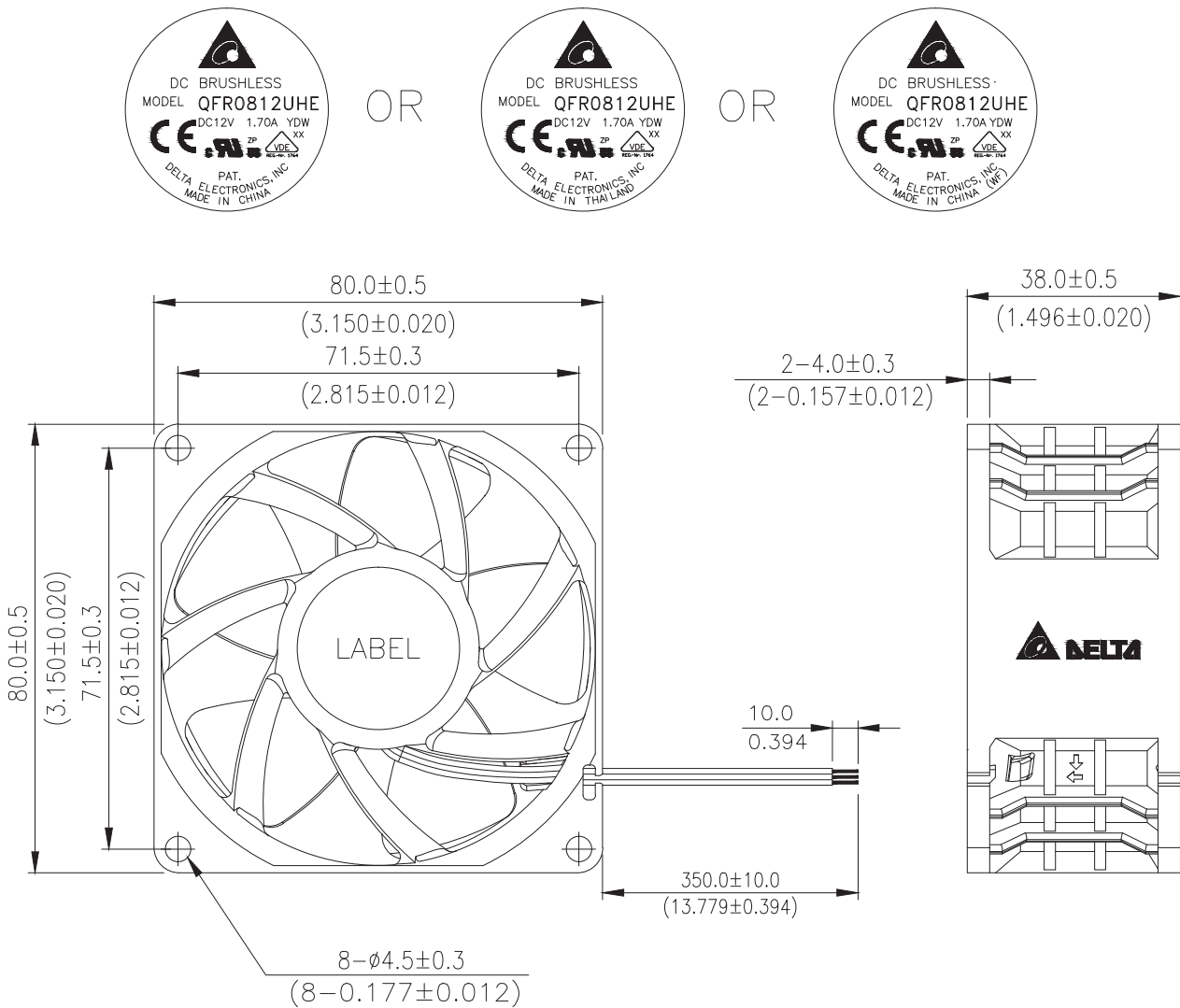
* TEST CONDITION: INPUT VOLTAGE ----- OPERATION VOLTAGE
TEMPERATURE ----- ROOM TEMPERATURE
HUMIDITY ----- 65%RH

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9. DIMENSIONS DRAWING

LABEL:



NOTES:

- LEAD WIRE: UL1061 AWG#24
RED WIRE ----- (+)
BLACK WIRE ----- (-)
BLUE WIRE ----- (PWM)
YELLOW WIRE ----- (FOO)
- THIS PRODUCT IS RoHS COMPLIANT.

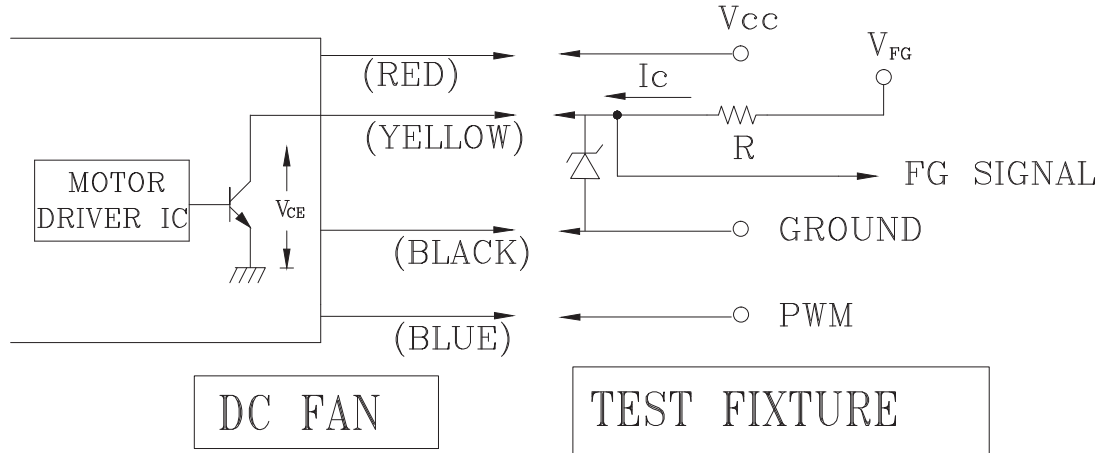
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10. FREQUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT – OPEN COLLECTOR MODE:



REMARK: TVS VOLTAGE DEFINE BY FACTORY.

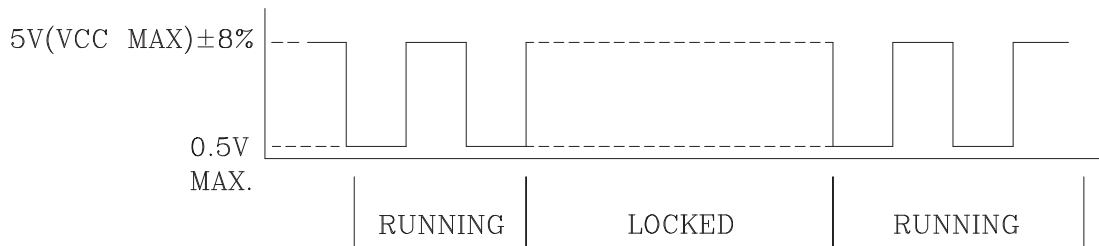
CAUTION: THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM
" + " LEAD WIRE & " - " LEAD WIRE.

2. SPECIFICATION:

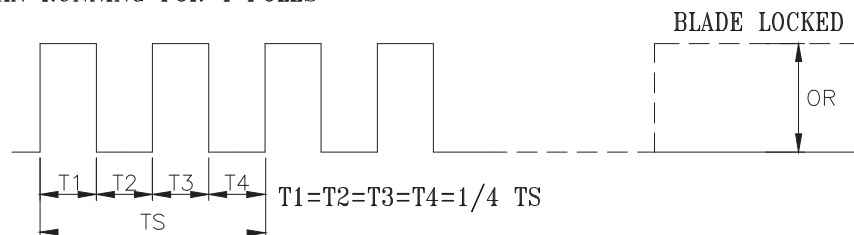
$$V_{FG} = 5V \text{ TYP. (VCC MAX)} \quad I_c = 2mA \text{ MAX.}$$

$$V_{CE} = 0.5V \text{ MAX.} \quad R \geq V_{FG}/I_c$$

3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



N=R.P.M

TS=60/N(SEC)

*VOLTAGE LEVEL AFTER BLADE LOCKED

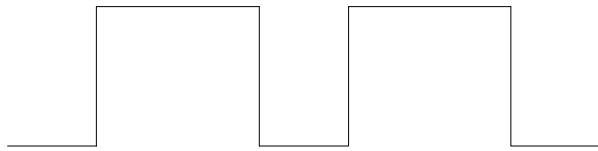
*4 POLES

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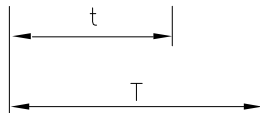
11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0 ~ 10VDC



HIGH SIGNAL: 10 VDC MAX.
2.8 VDC MIN.

LOW SIGNAL: 0.8 VDC MAX.
0 VDC MIN.



$$\text{DUTY CYCLE} = \frac{t}{T} * 100(\%)$$

- 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 BE STOPPED.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.
- AT RATED VOLTAGE ,25K HZ ,20% 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 & TEMPERATURE=25C)

DUTY CYCLE (%)	SPEED R.P.M. (REF.)	CURRENT (A) TYP.
100	9000±10%	1.15
0	0	0.02