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SPECIFICATION FOR APPROVAL
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Customer:

Description: DC FAN

Customer P/N: REV:

Delta Model NO.: THB2048CTC3P Delta Safety Model NO.: THB2048CT

Smaple Rev: X00 Issue NO:

Sample Issue Date: JUNE.07 2016 Quantity:

1. SCOPE:

   THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS AXIAL FLOW FAN

2. CHARACTERS:

   THEREINAFTER ITEM IS SINGLE FAN CHARACTERS DESCRIPTION HAVE NOT FAN GUARD.

ITEM	DESCRIPTION
RATED VOLTAGE	48 VDC
OPERATION VOLTAGE	36.0-60.0 VDC
INPUT CURRENT	4.80 (MAX. 5.76) A (SAFETY CURRENT ON LABEL: 5.88 A)
INPUT POWER	230.40 (MAX. 276.48) W
SPEED	5800 ± 10% R.P.M. (REF.)
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	23.410 (MIN. 21.069) M^3/MIN. 827.37 (MIN. 744.63) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	68.50 (MIN. 55.485) mmH_2O 2.690 (MIN. 2.178) $inchH_2O$
ACOUSTICAL NOISE (AVG.)	73.6 (MAX.77.6) dB-A
INSULATION TYPE	UL: CLASS A

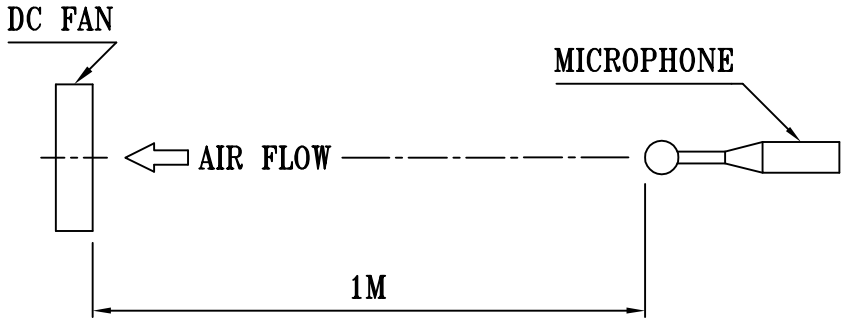
(continued)

PART NO:

DELTA MODEL: THB2048CTC3P

INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN PILLOW AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 50/60 Hz ONE MINUTE, (BETWEEN PILLOW AND (+) TERMINAL)
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 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.

A00

PART NO:

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3. MECHANICAL:

3-1. DIMENSIONS ---------- SEE DIMENSIONS DRAWING

3-2. FRAME ---------- DIE-CAST ALUMINUM

3-3. IMPELLER ---------- PLASTIC UL: 94V-0

3-4. BEARING SYSTEM ---------- TWO BALL BEARINGS

3-5. WEIGHT ---------- 1600 GRAMS

3-6. INGRESS PROTECTION RATE ---------- IP 55

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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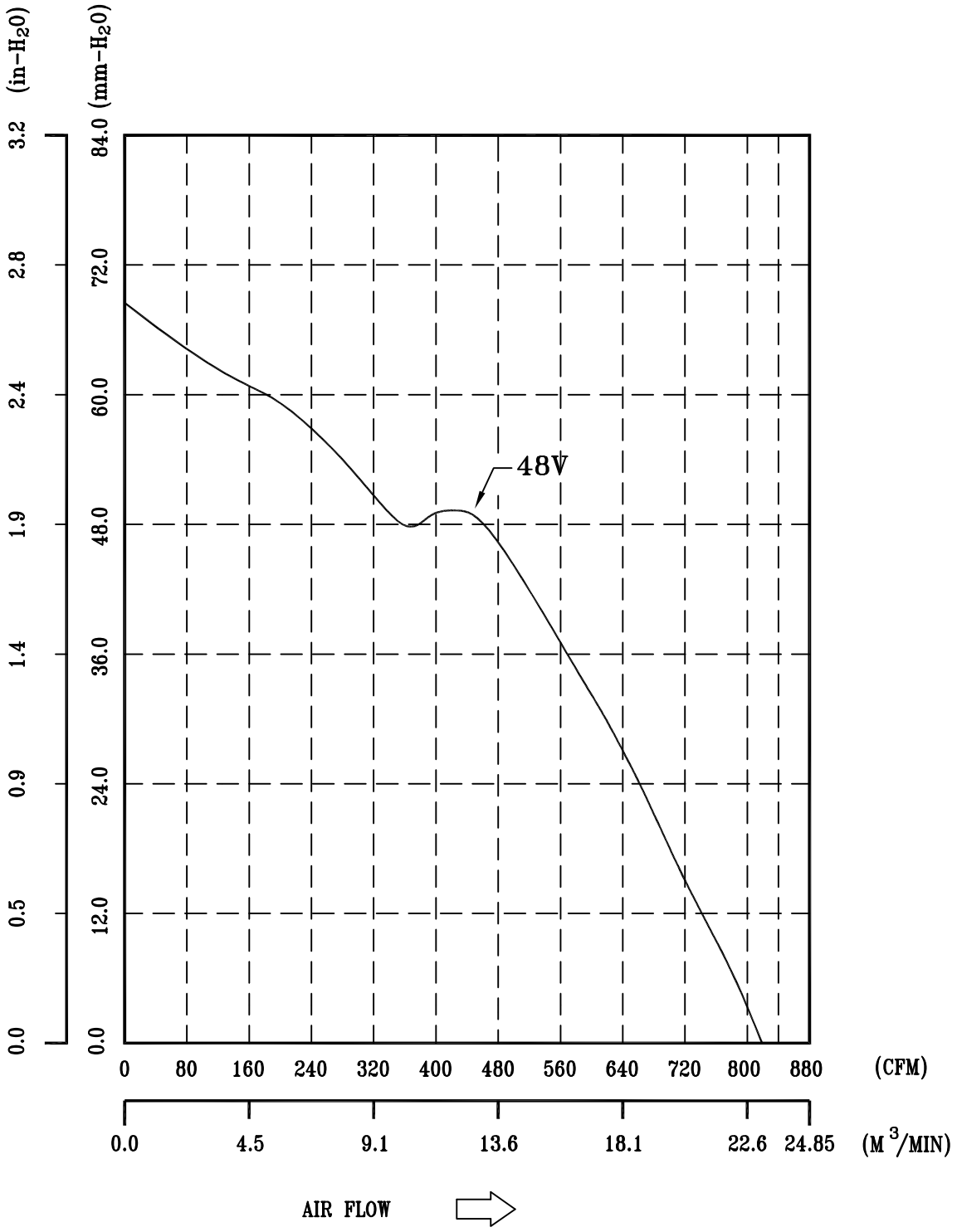
8. P & Q CURVE:



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

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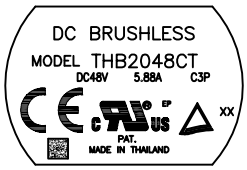
9. DIMENSION DRAWING:

LABEL:

OR



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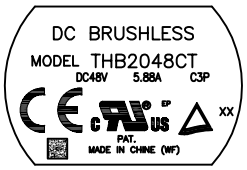
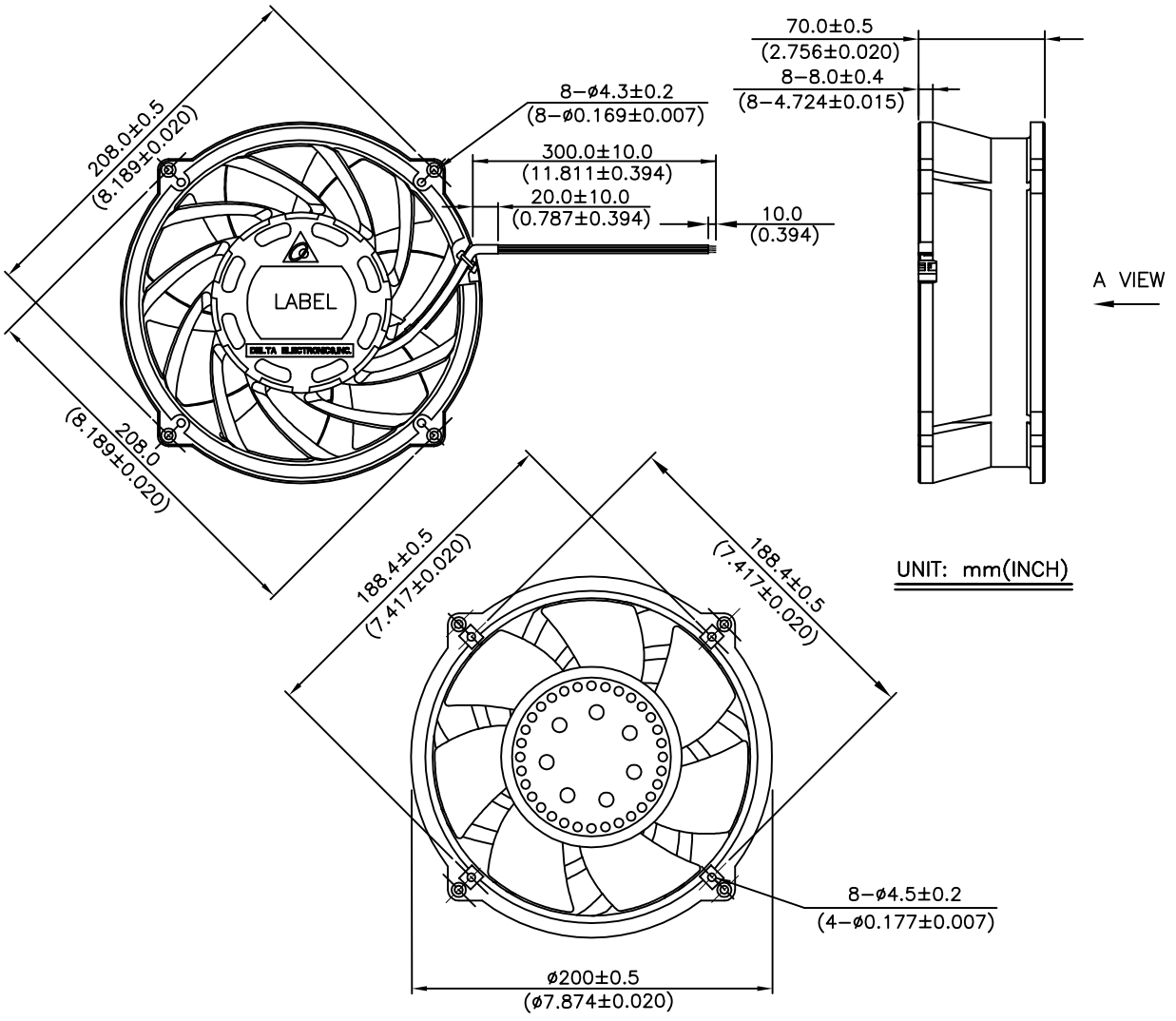




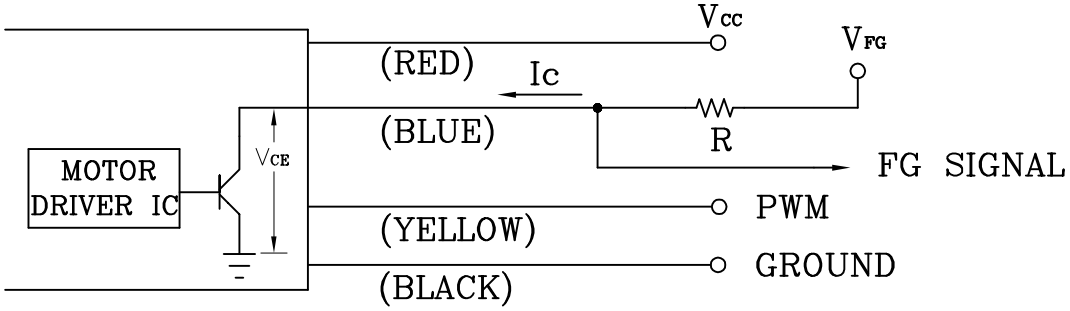
NOTE:

1.LEAD WIRE UL:1430 AWG#20
RED WIRE----(+)
BLACK WIRE----(-)
LEAD WIRE UL:1430 AWG#24
YELLOW WIRE----(PWM)
BLUE WIRE----(FOO)

2.THIS PRODUCT IS RoHS COMPLIANT.

10. FREQUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



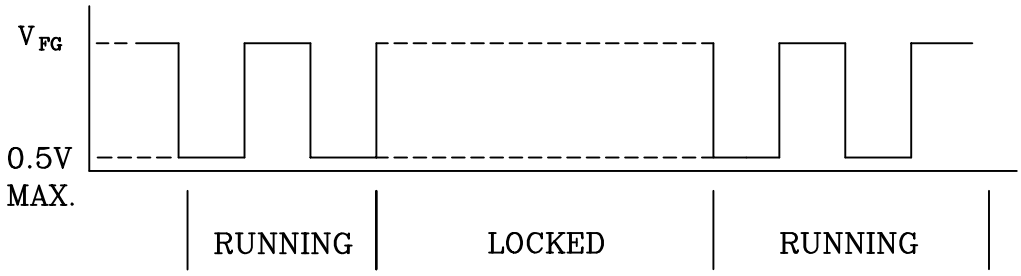
CAUTION: THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM"+" LEAD WIRE & "−" LEAD WIRE.

2. SPECIFICATION:

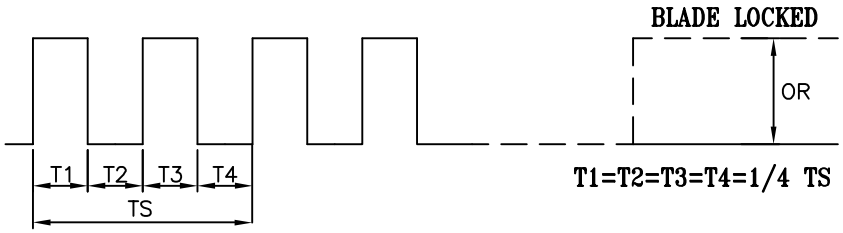
V_{FG} = 60.0 V MAX. I_C = 5mA MAX.

$V_{CE(sat)}$ = 0.5V MAX. $R \geq V_{FG}/I_C$

3. FREQUENCY GENERATOR WAVEFORM:



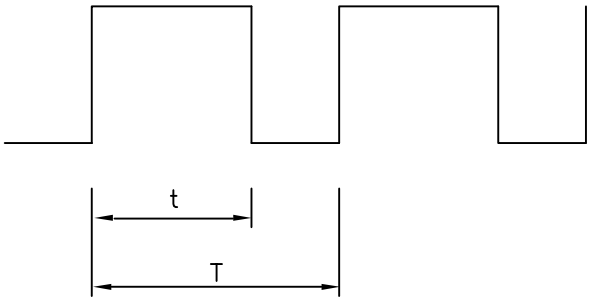
2 PULSES PER ROTATION



N=R.P.M
TS=60/N(SEC)
*VOLTAGE LEVEL AFTER BLADE LOCKED

11. PWM CONTROL SIGNAL: (TEST AT RATED VOLTAGE , TEMP=25 DEG.C)

SIGNAL VOLTAGE RANGE: 0~10VDC



HIGH SIGNAL: 10 VDC MAX. 3.3 VDC MIN.

LOW SIGNAL: 0.4 VDC MAX. 0 VDC MIN.

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

- THE FREQUENCY FOR CONTROL SIGNAL OF THE FAN SHALL BE ABLE TO ACCEPT A 600HZ ~ 5KHZ(REF.) WITH DIFFERENT SPEED PERFORMANCE.
- PWM SIGNAL WITH 5VDC TTL OR CMOS LEVELS. THE PREFERRED OPERATING POINT FOR THE FAN IS 1KHZ.
- 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 & 1KHZ & 30% DUTY CYCLE, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

12. SPEED VS PWM CONTROL SIGNAL: (TEST AT RATED VOLTAGE & PWM FREQ.=1KHZ & PWM SIGNAL WITH 5VDC TTL & TEMP=25 DEG.C)

DUTY CYCLE (%)	SPEED R.P.M. (REF.)	CURRENT (A) TYP. (REF.)
100	5800±10%	4.80
50	3800±10%	1.40
0	0	0.02

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE: