



**SPECIFICATION FOR APPROVAL**

Customer \_\_\_\_\_

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

Part No. \_\_\_\_\_ REV. \_\_\_\_\_

Delta Model No. \_\_\_\_\_ THB1748BG \_\_\_\_\_ REV. \_\_\_\_\_ 00 \_\_\_\_\_

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

Sample Issue Date \_\_\_\_\_ DEC.06.2011 \_\_\_\_\_

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

APPROVED BY: \_\_\_\_\_

DATE : \_\_\_\_\_

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SPECIFICATION FOR APPROVAL  
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Customer:

Description: DC FAN

Customer P/N: REV:

Delta Model NO.: THB1748BG

Sample Rev: 00 Issue NO:

Sample Issue Date: DEC.05.2011 Quantity:

1. SCOPE:

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

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	48 VDC
OPERATION VOLTAGE	36.0 - 56.0 VDC
INPUT CURRENT	3.50 (MAX. 4.20) A (CURRENT ON SAFETY LABEL : 5.80A)
INPUT POWER	168.0 (MAX. 201.6) W
SPEED	8000 ±10% R.P.M
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	17.17 (MIN. 15.45) M <sup>3</sup> /MIN. 607.07 (MIN. 546.36) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	105.5 (MIN. 85.09) mmH <sub>2</sub> O 4.136 (MIN. 3.350) inchH <sub>2</sub> O
ACOUSTICAL NOISE (AVG.)	75.0 ( MAX. 79.0 ) dB-A
INSULATION TYPE	UL: CLASS A

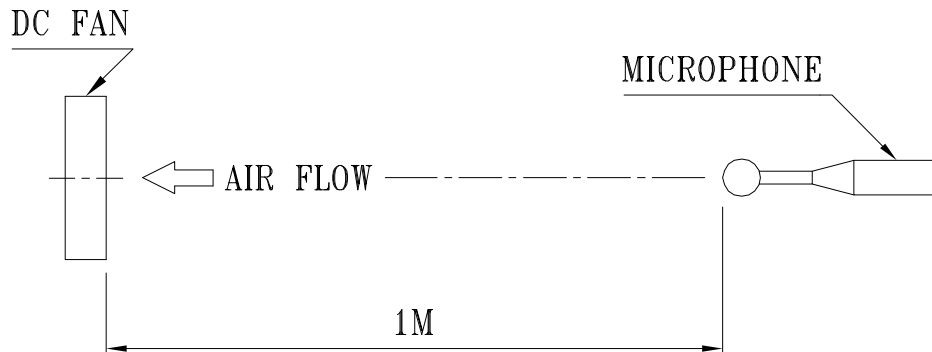
(continued)

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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)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE	70,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	COUNTER-CLOCKWISE VIEW FROM NAME PLATE SIDE
LOCKED ROTOR SHUT DOWN	THE CURRENT WILL SHUT DOWN WHEN LOCKING ROTOR.
LEAD WIRE	LEAD WIRE: UL1430 AWG#22 RED WIRE-----(+) BLACK WIRE-----(-) BLUE WIRE----- (FOO) YELLOW WIRE----- (PWM)

- NOTES: 1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.  
2. THE VALUES WRITTEN IN PARENS , ( ), ARE LIMITED SPEC.  
3. 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 ----- DIE-CAST ALUMINUM
- 3-3. IMPELLER ----- PLASTIC UL: 94V-0
- 3-4. BEARING SYSTEM ----- TWO BALL BEARINGS
- 3-5. WEIGHT ----- 920 GRAMS

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.

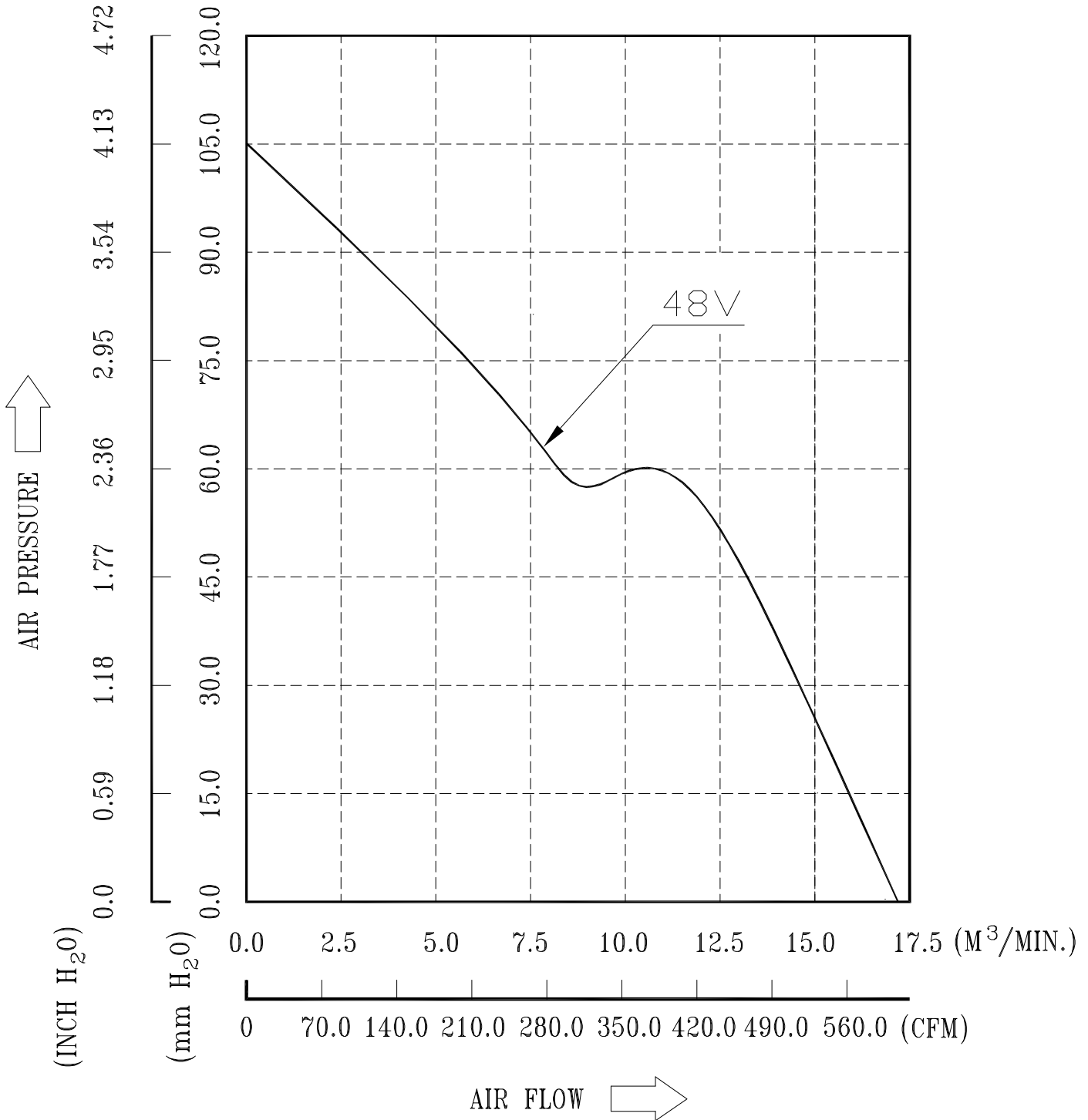
7. PRODUCTION LOCATION

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

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8.P & Q CURVE:



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

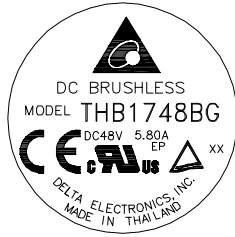
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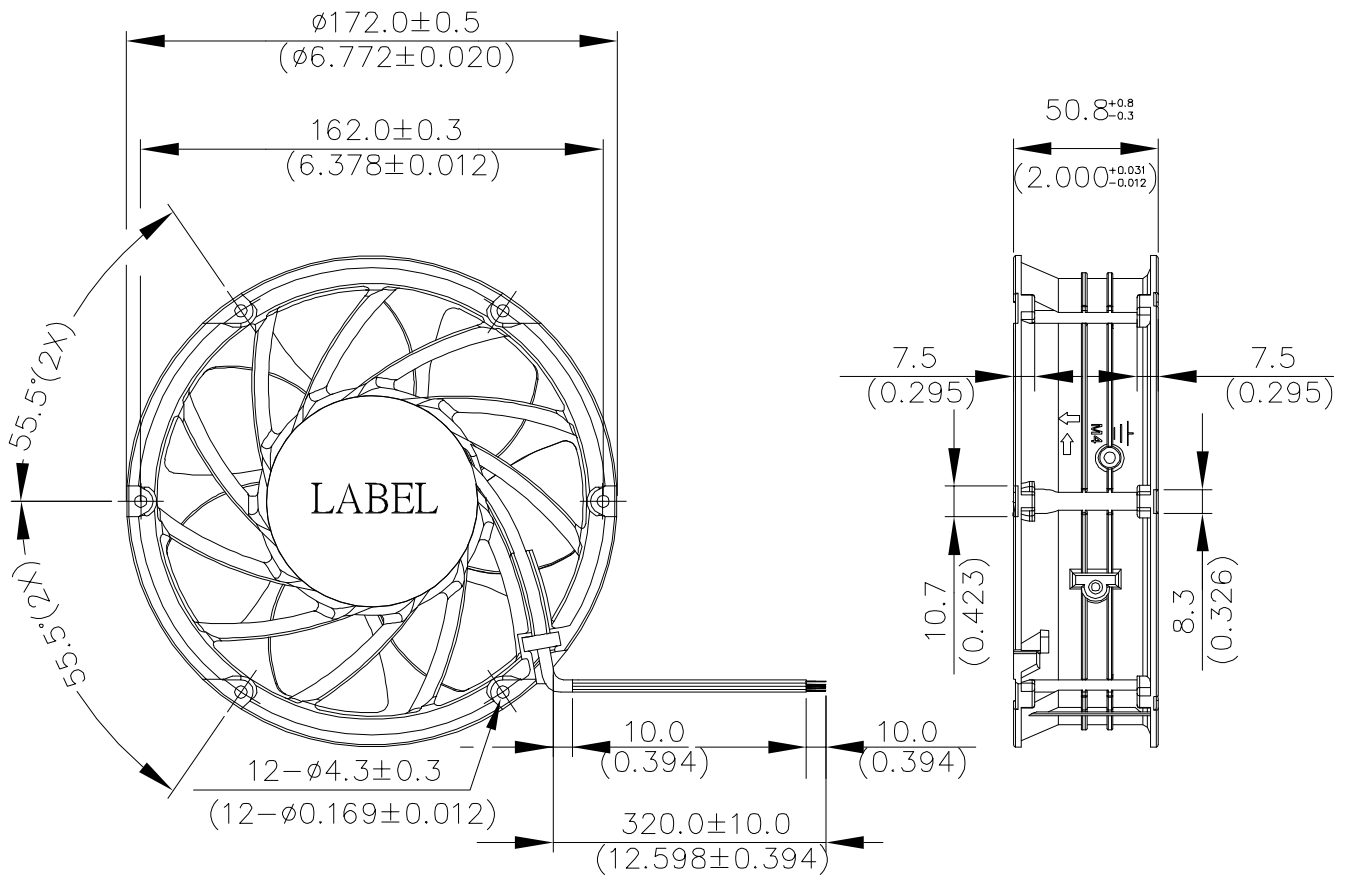
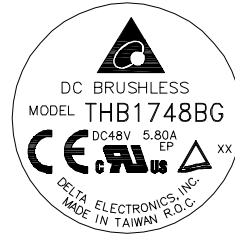
9. DIMENSION DRAWING:



OR



OR



UNIT: mm (INCH)

NOTES:

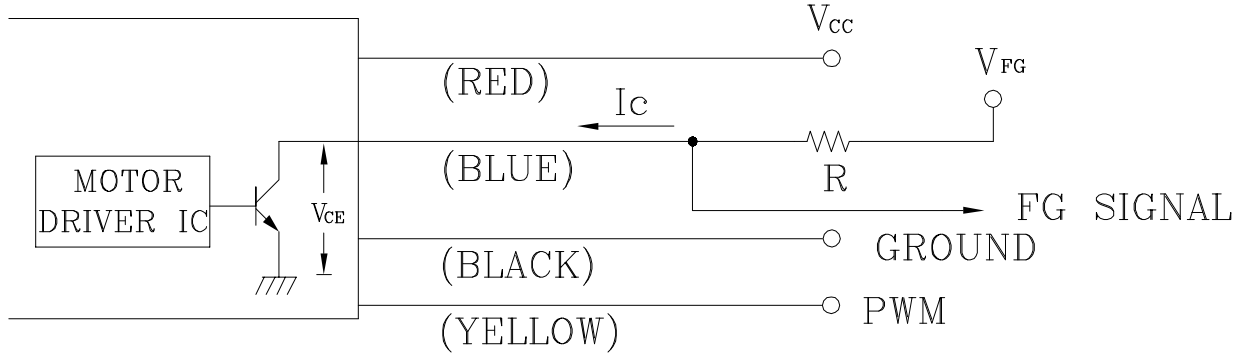
1. LEAD WIRE: UL1430 AWG#22  
RED WIRE-----(+)  
BLACK WIRE-----(-)  
BLUE WIRE----- (F00)  
YELLOW WIRE----- (PWM)
2. THIS PRODUCT IS RoHS COMPLIANT

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### 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:

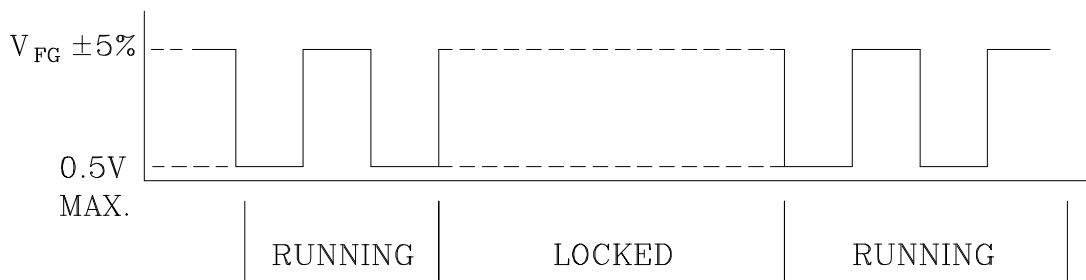
$$V_{CE(sat)} = 0.5V \text{ MAX}$$

$$V_{FG} = 56.0V \text{ MAX}$$

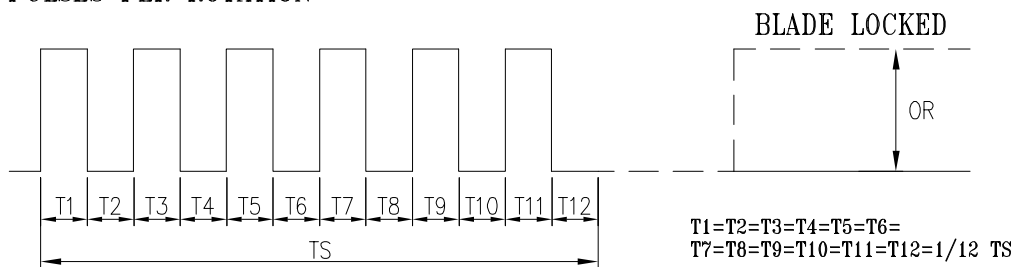
$$I_c = 5mA \text{ MAX.}$$

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

#### 3. FREQUENCY GENERATOR WAVEFORM:



6 PULSES PER ROTATION



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

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

\*VOLTAGE LEVEL AFTER BLADE LOCKED

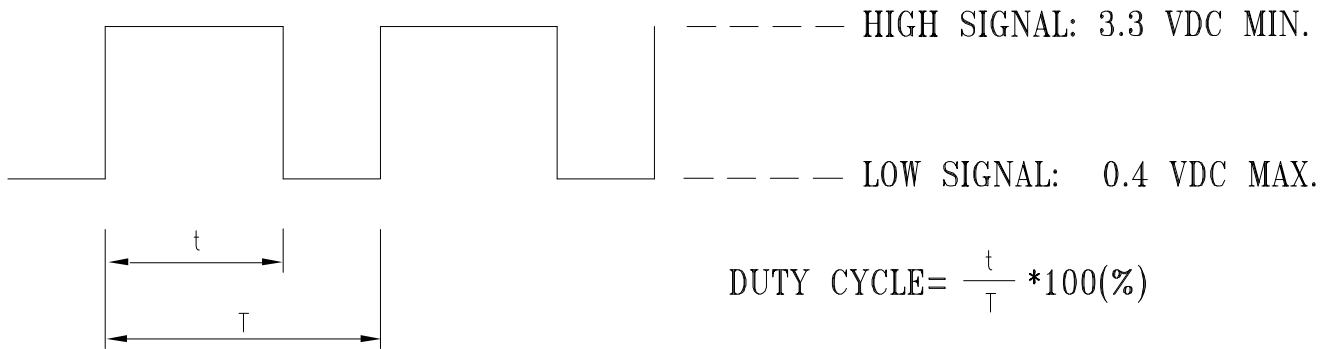


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11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~10V VDC

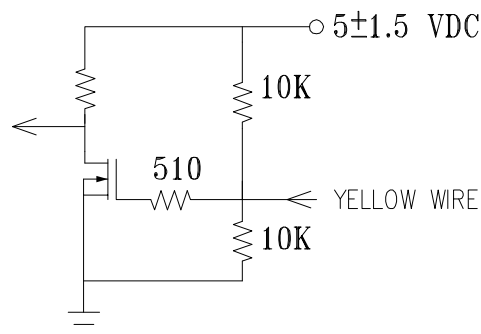


- THE FREQUENCY FOR CONTROL SIGNAL OF THE FAN SHALL BE ABLE TO ACCEPT 15KHZ~25KHZ (REF.) WITH DIFFERENT SPEED PERFORMANCE.
- THE PREFERRED OPERATING POINT FOR THE FAN IS 20KHZ.
- AT 100% DUTY CYCLE, THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0% DUTY CYCLE, THE ROTOR WILL STOP.
- WITH CONTROL SIGNAL LEAD DISCONNECTED, THE FAN WILL SPIN AT MAXIMUM SPEED.

12. SPEED VS PWM CONTROL SIGNAL: (AT 48VDC PWM F:20KHZ TEMP:25 DEGREE C)

DUTY CYCLE (%)	SPEED R.P.M. (REF.)	CURRENT (A) REF.
100	8000±10%	3.50
50	5000±10%	0.95
0	0	0.02

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:



14. INPUT 48~56V FAN SPEED KEEP IN 8000±10% R.P.M.