:

SPECIFICATION FOR APPROVAL

Customer			
Description	DC FAN		
Part No.		**Rev.**	
Delta Model No.	FFB0848SHE-TP36	**Rev.**	00
Sample Issue No.			
Sample Issue Date.	Feb 02, 10		

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

APPROVED BY : _____

DATE : _____

DELTA ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED.
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Customer P/N:		REV:
Delta Model NO.:	FFB0848SHE-TP36	
Sample Rev:	00	Issue NO:
Sample Issue Date:	Feb 02, 10	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	28.0 - 56.0 VDC
INPUT CURRENT	0.16 (MAX. 0.20) A
INPUT POWER	7.68 (MAX. 11.52) W
SPEED	4900±10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	1.940 (MIN. 1.740) M^3/MIN. 68.51 (MIN. 61.45) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	15.01 (MIN. 12.16) mmH_2O 0.591 (MIN. 0.479) $inchH_2O$
ACOUSTICAL NOISE (AVG.)	48.5 (MAX. 52.5) dB-A
INSULATION TYPE	UL: CLASS A
CURRENT ON LABEL	0.24 A

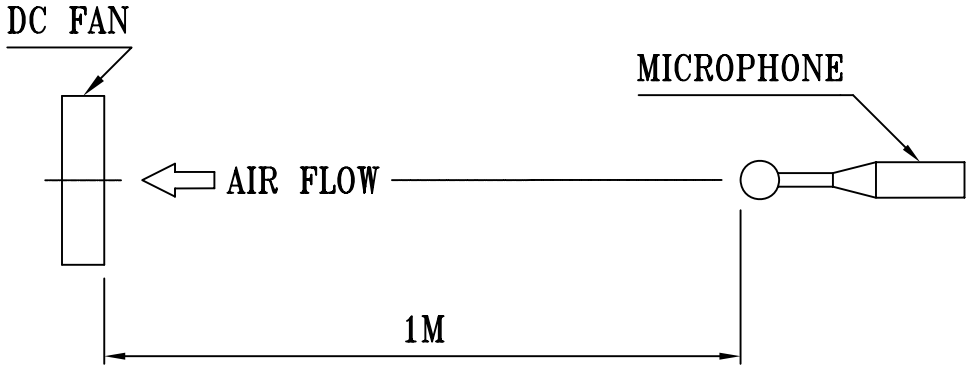
(continued)

PART NO:

DELTA MODEL: FFB0848SHE-TP36

INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 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	CLOCKWISE VIEW FROM NAME PLATE SIDE
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN WHEN LOCKING ROTOR.
LEAD WIRE	UL 1061 -F- AWG #24 RED WIRE POSITIVE(+) BLACK WIRE NEGATIVE(-) BLUE WIRE FREQUENCY(-F00) YELLOW WIRE SIGNAL CONTROL(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.

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 ——— 170 GRAMS

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE ——— -10 TO +60 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.

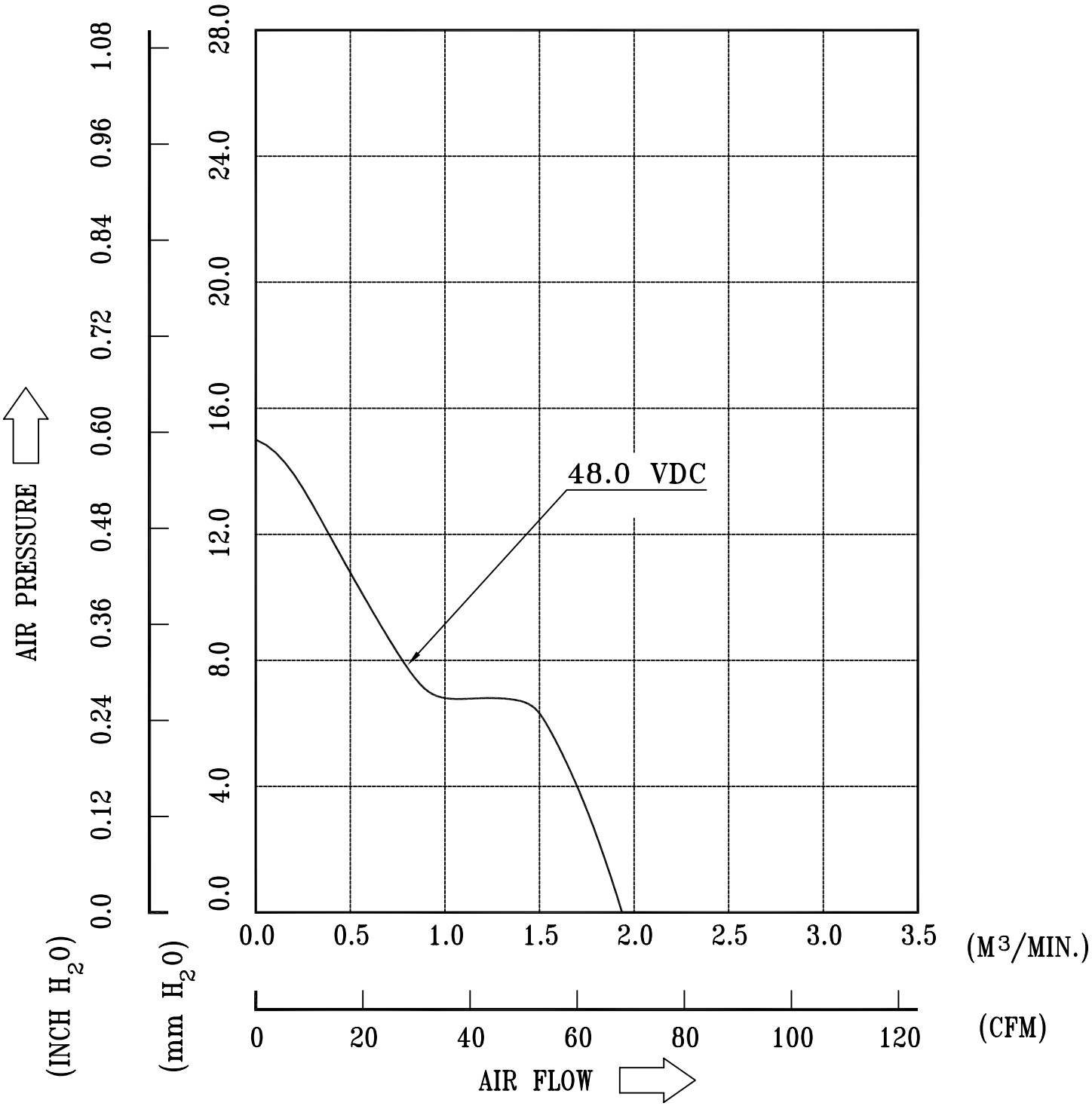
7. PRODUCTION LOCATION

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

PART NO:

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8. P & Q CURVE:



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

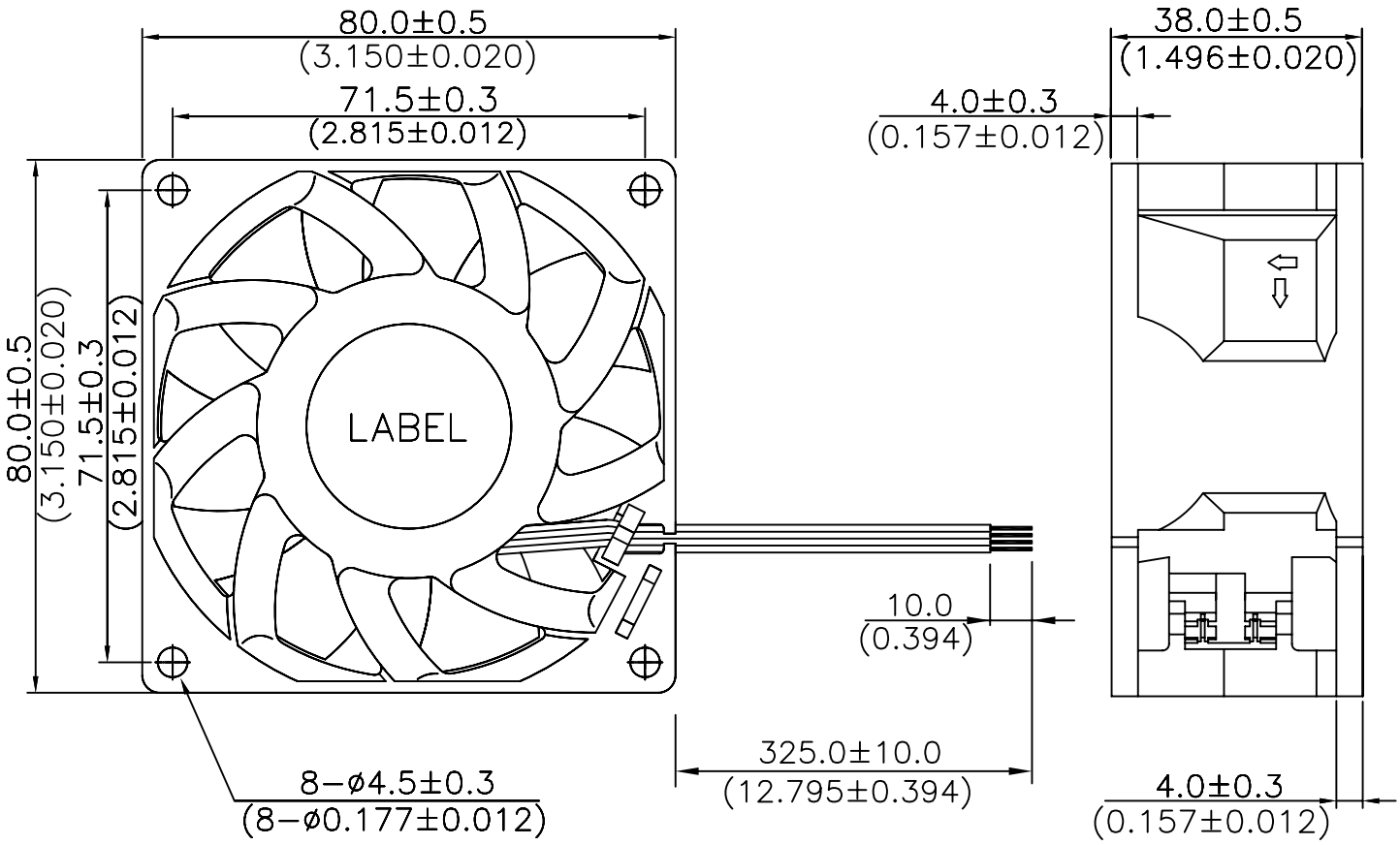
PART NO:

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9. DIMENSION DRAWING:

LABEL:





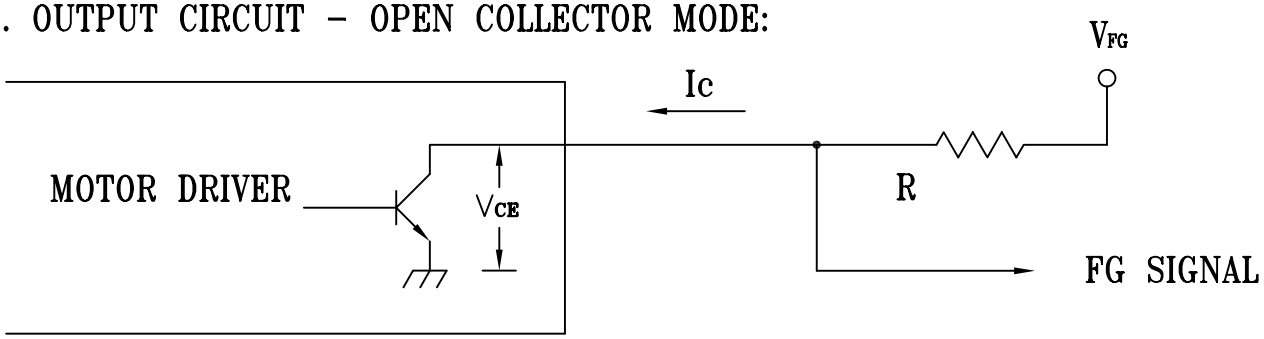
NOTES:

UNIT:mm(INCH)

1. WIRE: UL1061 AWG#24
   RED WIRE-----(+)
   BLACK WIRE-----(-)
   BLUE WIRE-----(-F00)
   YELLOW WIRE-----(PWM)
2. THIS PRODUCT IS RoHS COMPLIANT.

10. FREQUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



CAUTION:

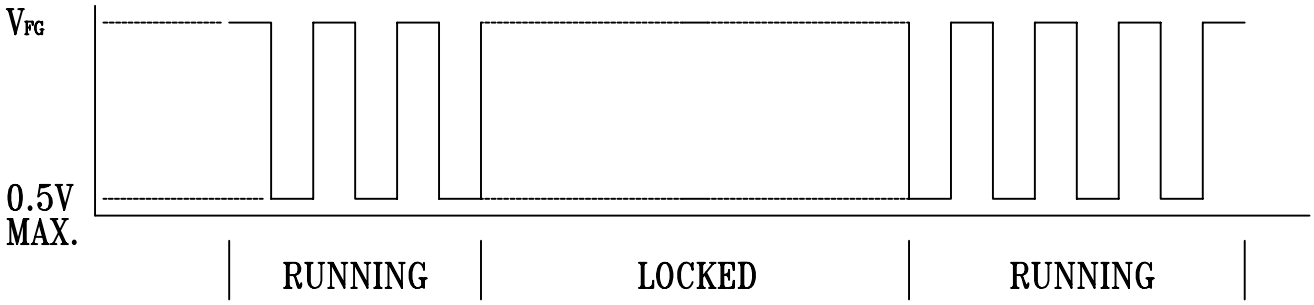
THE LEAD WIRE OF FG SIGNAL CAN NOT TOUCH
THE LEAD WIRE OF POSITIVE OR NEGATIVE.

2. SPECIFICATION:

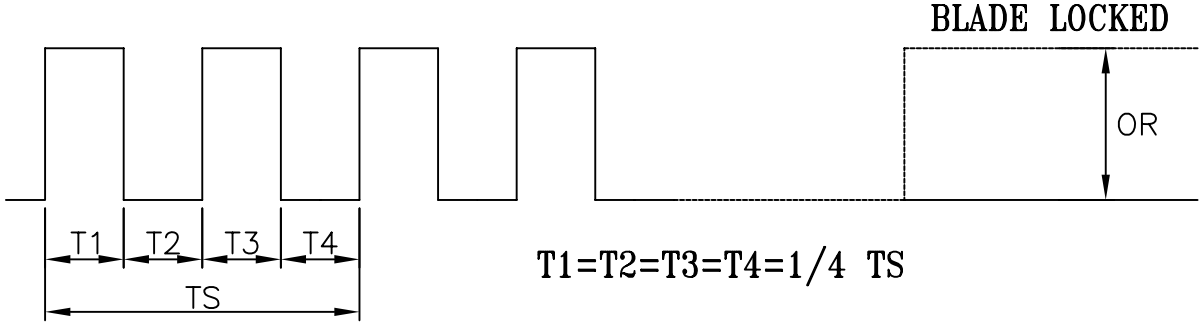
V_{CE} (sat)=0.5V MAX. V_{FG} =56.0VDC MAX.

I_C =5mA MAX. $R \geq V_{FG}/I_C$

3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



T1=T2=T3=T4=1/4 TS

N=R.P.M

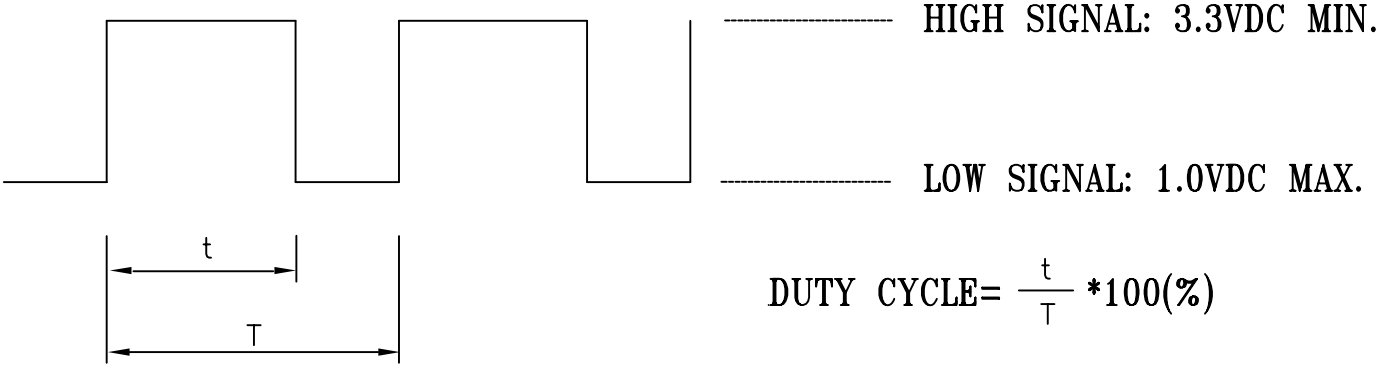
TS=60/N(SEC)

*VOLTAGE LEVEL AFTER BLADE LOCKED

*4 POLES

11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~10VDC



PWM SIGNAL WITH 5VDC TTL OR CMOS LEVELS. THE PREFERRED OPERATING POINT FOR THE PWM SIGNAL IS 20KHZ.
AT 0% DUTY CYCLE,THE ROTOR WILL BE STOPPED .
AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
IF THE PWM CONTROL WIRE OPEN,THE ROTOR WELL SPIN AT MAXIMUM SPEED.
WHEN THE ROTOR IS HALTED , IT WILL BE ABLE START FROM A DEAD STOP MORE THAN 30% DUTY CYCLE.

12. SPEED VS PWM CONTROL SIGNAL:(PWM INPUT 5V FREQUENCY:20KHZ)

DUTY CYCLE (%)	SPEED R.P.M.
100	4900±10%
75	3550±10%
25	1350±250
0	0

Application Notice

1. Delta will not guarantee the performance of the products if the application condition falls outside the parameters set forth in the specification.
2. A written request should be submitted to Delta prior to approval if deviation from this specification is required.
3. Please exercise caution when handling fans. Damage may be caused when pressure is applied to the impeller, if the fans are handled by the lead wires, or if the fan was hard-dropped to the production floor.
4. Except as pertains to some special designs, there is no guarantee that the products will be free from any such safety problems or failures as caused by the introduction of powder, droplets of water or encroachment of insect into the hub.
5. The above-mentioned conditions are representative of some unique examples and viewed as the first point of reference prior to all other information.
6. It is very important to establish the correct polarity before connecting the fan to the power source. Positive (+) and Negative (-). Damage may be caused to the fans if connection is with reverse polarity, if there is no foolproof method to protect against such error specifically mentioned in this spec.
7. Delta fans without special protection are not suitable where any corrosive fluids are introduced to their environment.
8. Please ensure all fans are stored according to the storage temperature limits specified. Do not store fans in a high humidity environment. We highly recommend performance testing is conducted before shipping, if the fans have been stored over 6 months.
9. Not all fans are provided with the Lock Rotor Protection feature. If you impair the rotation of the impeller for the fans that do not have this function, the performance of those fans will lead to failure.
10. Please be cautious when mounting the fan. Incorrect mounting of fans may cause excess resonance, vibration and subsequent noise.
11. It is important to consider safety when testing the fans. A suitable fan guard should be fitted to the fan to guard against any potential for personal injury.
12. Except where specifically stated, all tests are carried out at room (ambient) temperature and relative humidity conditions of 25°C, 65% RH. The test value is only for fan performance itself.
13. Be certain to connect an “4.7μF or greater” capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.

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Global Electronic Components Distributor

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DELTA Electronics:

ASB02505SHA-AY6B DSOL-1341-12 FFB0912HHE PL01S4805A 30DPGS5C CTA4100A FFB1224SHE M55339/14-00306 SK-1015-STD 02BEEG3H 03GEEG3E 06BEEG3G AFB0524HHD BFB1248GH-A DTC1000C PJT-12V40WBAA PMT-48V75W2BA ACS3-CNTB0600 AFL12AUHE-C S24SP05012PDFA PMC-24V075W1AA 06AN2 AFB0624VH-A AFB0724VH-AF00 15GENG3E DSOL-0844-24 FFB0824SHE-F00 MDS-400APB24AA PFB1224UHEP0 PM05S050A