



SPECIFICATION FOR APPROVAL

Customer D P C

Description DC FAN

Customer P/N: _____ REV. _____

Delta Model No. FFB03612EHN-BGA REV. 00

Sample Issue No. _____

Sample Issue Date JUL.07.2011

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

APPROVED BY: _____

DATE : _____

DELTA ELECTRONICS, INC.
TAOYUAN PLANT
252, SHANG YING ROAD, KUEI SAN INDUSTRIAL ZONE TAOYUAN
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*** SAMPLE HISTORY ***

CUSTOMER: DPC

CUSTOMER P/N:

DELTA MODEL : FFB03612EHN-BGA

REV.	DESCRIPTION	DRAWN	CHECKED			APPROVED	ISSUE DATE
			ME	EE	CE		
00	ISSUE SPEC	李君鴻 07/01'11	李君鴻 07/01'11	黃清彰07/01'11	---	陳建樺 07/05'11	07/07'11

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SPECIFICATION FOR APPROVAL

Customer: DPC

 Description: DC FAN

 Customer P/N: REV:

 Delta Model NO.: FFB03612EHN-BGA

 Sample Rev: 00 Issue NO:

 Sample Issue Date: JUL.07.2011 Quantity:

1. SCOPE:

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

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	12 VDC
OPERATION VOLTAGE	10.8 - 13.2 VDC
INPUT CURRENT	0.33 (MAX. 0.40) A CURRENT ON SAFETY LABEL : 0.75 A
INPUT POWER	3.96 (MAX. 4.80) W
SPEED	14500 R.P.M. (±10%)
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	0.461 (MIN. 0.415) M ³ /MIN. 16.30 (MIN. 14.67) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	25.40 (MIN. 20.57) mmH ₂ O 1.000 (MIN. 0.810) inchH ₂ O
ACOUSTICAL NOISE (AVG.)	50.0 (MAX. 54.0) dB-A
INSULATION TYPE	UL: CLASS A

(continued)

PART NO:

DELTA MODEL: FFB03612EHN-BGA

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	50000 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 #28 BLACK WIRE NEGATIVE(-) RED WIRE POSITIVE(+) BLUE WIRE FREQUENCY(-F00) YELLOW WIRE SPEED 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. THE CHARACTERS SHOWED IN PAGE 1 IS THE CONDITION OF BOTH FANS RUN.
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.

PART NO:

DELTA MODEL: FFB03612EHN-BGA

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 ----- 32 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.

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:



DIMENSION UNIT: MM(INCH)

NOTES:

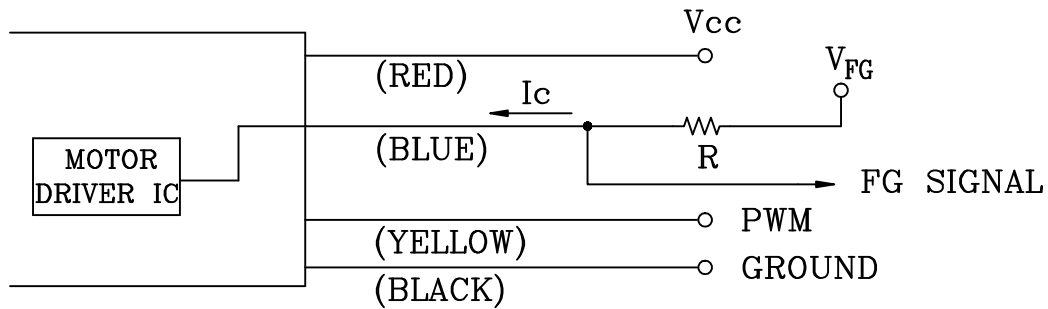
1. THIS PRODUCT IS RoHS COMPLIANT.
2. LEAD WIRE UL 1061 -F- AWG #28
RED WIRE POSITIVE(+)
BLACK WIRE NEGATIVE(-)
BLUE WIRE FREQUENCY(-F00)
YELLOW WIRE SPEED CONTROL(-PWM)

PART NO:

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10. FREQUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



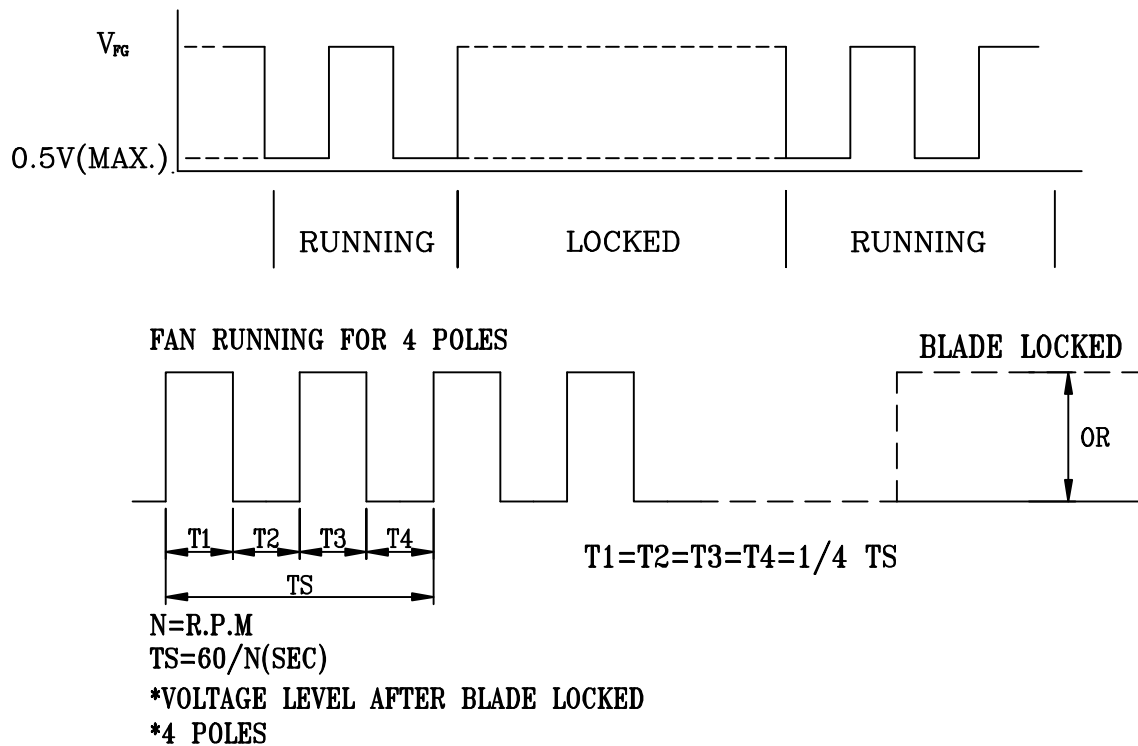
"+" LEAD WIRE & "-" LEAD WIRE.

2. SPECIFICATION:

$$V_{FG} = 13.2V \text{ MAX. } I_c = 5mA \text{ MAX.}$$

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

3. FREQUENCY GENERATOR WAVEFORM:



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11. PWM CONTROL SIGNAL:



- THE FREQUENCY FOR CONTROL SIGNAL OF THE FAN SHALL BE ABLE TO ACCEPT A 20KHZ~25KHZ.
- 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 STOP.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.
- AT 12V 25KHZ 30% 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 & TEMP=25°C)

DUTY CYCLE (%)	SPEED R.P.M. (REF.)	CURRENT (A) TYP.
100	14500±10%	0.33
50	6500+800/-650	0.08
0	0	0.01

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:



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